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INSTRUCTIONS TO BIDDERS



INSTRUCTIONS TO BIDDERS

A. GENERAL

IB.1 Scope of Bid

- 1.1 The Employer as defined in the Bidding Data hereinafter called the “Employer” wishes to receive Bids for the construction and completion of works as described in these Bidding Documents, and summarized in the ***Bidding Data*** hereinafter referred to as the “Works”.
- 1.2 The successful Bidder will be expected to complete the Works within the time specified in ***Bidding Data***.

IB.2 Source of Funds

- 2.1 The Employer has applied for/received a funding from the source(s) in various currencies towards the cost of the project specified in the Bidding Data and it is intended that part of the proceeds of this funding will be applied to eligible payments under the Contract for which these Bidding Documents are issued.

IB.3 Eligible Bidders

- 3.1 This Invitation for Bids is open to all Bidders meeting the following requirements at the time of submission of Bids and thereafter:
 - a) Duly eligible for this bidding process;
 - b) Duly licensed by the Pakistan Engineering Council (PEC) in the category relevant to the value of the Works in the relevant field of specialization.

However, a Foreign Constructor can submit provisional license with its Bid but the Foreign Constructor will be required to submit standard license after award of Contract and before start of work.

Foreign Constructor shall not be eligible to participate in bidding individually. Foreign Constructor shall enter into joint venture with Pakistani Constructor registered with the Pakistan Engineering Council in equivalent/compatible category and submit the joint venture agreement to the Employer before participating in bidding in accordance with PEC Construction and Operation of Engineering Works Bye-laws, 1987;

- c) Pakistani Constructor must be on Active Taxpayer List of the Federal Board of Revenue and provincial revenue authority/ board where applicable; and
- d) All partners constituting the Bidder including proposed subcontractors do not appear in the list of debarred/ blacklisted firms and individuals on the websites of PEC and Federal & Provincial Procurement Regulatory Authorities and have not been declared debarred/ blacklisted by foreign country, international organizations



or other foreign institutions.

IB.4 Eligible Materials, Equipment and Services

- 4.1 All materials, equipment and services to be supplied under this Contract shall have their origin in eligible countries described under paragraph 4.4 hereunder.
- 4.2 For purpose of this Clause, “origin” means the place where the Goods are mined, grown or produced or from where the ancillary services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembling of components, a commercially recognized product results that is substantially different in basic characteristics or in purpose or utility from its components.
- 4.3 The origin of Goods and Services is distinct from the nationality of the Bidder.
- 4.4 Eligible countries to participate in this bidding process are those which have been notified by Ministry of Interior, Government of Pakistan as Business Friendly Countries (BVL); information can be accessed through following link:
<http://www.dgip.gov.pk/Files/Visa%20Categories.aspx#L>

IB.5 One Bid per Bidder

- 5.1 Each Bidder shall submit only one bid either by himself, or as a partner in a joint venture. A Bidder who submits or participates in more than one Bid (other than alternatives pursuant to Clause IB.17) will be disqualified.

IB.6 Site Visit

- 6.1 The Bidders are advised to visit and examine the Site of Works and its surroundings and obtain for themselves on their own responsibility, all information that may be necessary for preparing the Bid and entering into a contract for Construction of the Works. All cost in this respect shall be at the Bidder's own expense.
- 6.2 The Bidders and any of their personnel or agents will be granted permission by the Employer to enter upon his premises and lands for the purpose of such inspection, but only upon the express condition that the Bidders, their personnel and agents, will release and indemnify the Employer, his personnel and agents from and against all liability in respect thereof and will be responsible for death or personal injury, loss of or damage to property and any other loss, damage, costs and expenses incurred as a result of such inspection.



B. BIDDING DOCUMENTS

IB.7 Contents of Bidding Documents

7.1 The Bidding Documents, in addition to invitation for Bids, are those stated below and should be read in conjunction with any Addenda issued in accordance with Clause IB.9.

1. Instructions to Bidders;
2. Bidding Data;
3. Evaluation Criteria and Qualification Updating Forms;
4. General Conditions of Contract, (GCC);
5. Particular Conditions of Contract, (PCC);
 - Part A- Contract Data;
 - Part B – Special Provisions;
6. Specifications (SP);
 - Part A – Specific Provisions;
 - Part B – Technical Provisions;
7. Letter of Bid;
8. Schedules to Bid;
9. Standard Forms;
 - i. Form of Bid Security;
 - ii. Letter of Acceptance;
 - iii. Form of Contract Agreement;
 - iv. Form of Performance Security;
 - v. DAAB Agreement;
 - vi. Form of Mobilization Advance Guarantee;
 - vii. Bill of Quantities (Schedule – B to Bid);
10. Drawings;

7.2 The Bidders are expected to examine carefully the contents of all the above documents. Failure to comply with the requirements of Bid submission will be at the Bidder's own risk. Pursuant to Clause IB.26, Bids which are not substantially responsive to the requirements of the Bidding Documents will be rejected.

IB.8 Clarification of Bidding Documents & Pre-Bid Meeting

- 8.1 Any prospective Bidder requiring any clarification(s) in respect of the Bidding Documents may notify the Employer in writing at the Employer's address indicated in the Invitation for Bids. The Employer will respond to any request for clarification which he receives earlier than the period specified in the **Bidding Data**, prior to the deadline for submission of bids.
- 8.2 Copies of the Employer's response will be forwarded to all purchasers of the Bidding Documents, including a description of the enquiry but without identifying its source.
- 8.3 The Employer may on his own or at the request of any prospective Bidder(s), hold a



pre-bid meeting to clarify issues and to answer any questions on matters related to the Bidding Documents. The date, time and venue of pre-bid meeting, if convened, are as stipulated in the **Bidding Data**. All prospective Bidders or their authorized representatives shall be invited to attend such a pre-bid meeting.

- 8.4 The Bidders are requested to submit questions, if any, in writing so as to reach the Employer not later than seven (07) days before the proposed pre-bid meeting.
- 8.5 Minutes of the pre-bid meeting, including the text of the questions raised and the replies given, will be transmitted without delay to all purchasers of the Bidding Documents. Any modification of the Bidding Documents listed in Sub- Clause IB.7.1 hereof which may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to Clause IB.9 and not through the minutes of the pre-bid meeting.
- 8.6 Absence at the pre-bid meeting will not be a cause for disqualification of a Bidder.

IB.9 Amendment of Bidding Documents

- 9.1 At any time prior to the deadline for submission of Bids, the Employer may, for any reason, whether at his own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Documents by issuing addendum.
- 9.2 Any addendum thus issued shall be part of the Bidding Documents pursuant to Sub-Clause IB 7.1 hereof and shall be communicated in writing to all purchasers of the Bidding Documents. Prospective Bidders shall acknowledge receipt of each addendum in writing to the Employer.
- 9.3 Such addendum shall be issued not later than number of days prior to the deadline for submission of bids, specified in the Bidding Data. To afford prospective Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Employer may extend the deadline for submission of Bids in accordance with Clause IB.20.

C. PREPARATION OF BIDS

IB.10 Cost of Bidding

- 10.1 The Bidders shall bear all costs associated with the preparation and submission of their respective bids and the Employer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

IB.11 Language of Bid

- 11.1 The Bid and all correspondence and documents related to the Bid exchanged by a Bidder and the Employer shall be in the Bid language stipulated in the **Bidding Data** and Particular Conditions of Contract. Supporting documents and printed literature



furnished by the Bidders may be in any other language provided the same are accompanied by duly certified translation of the relevant parts in the Bid language, in which case, for purposes of evaluation of the bid, the translation in Bid language shall prevail.

IB.12 Documents Comprising the Bid

12.1 Each Bidder shall:

- (a) submit duly filled in, signed and stamped Letter of Bid and completed Schedules to Bid as required, including Bill of Quantities, in accordance with Clause IB.18 hereof;
- (b) submit Bid Security in accordance with Clause IB.16 hereof;
- (c) submit alternative proposal, if permissible in accordance with Clause IB.17;
- (d) submit a written power of attorney authorizing the signatory of the Bid to act for and on behalf of the Bidder. The name and position held by each person signing the authorization must be typed or printed below the signature;
- (e) submit the Qualification Updating Forms duly filled in, signed and stamped along with requisite attachments, to establish that the Bidder continues to meet the Eligibility and Qualification Criteria set out in bidding document and as provided in the Section "Evaluation Criteria and Qualification Updating Forms";
- (f) furnish a technical proposal taking into account the various Schedules to Bid, specially the following:

Schedule-C to Bid	Proposed Construction Schedule
Schedule-D to Bid	Method of Performing the Work
Schedule-E to Bid	List of Major Equipment
Schedule-F to Bid	Organization Chart for Supervisory Staff and other pertinent information such as mobilization program etc.

12.2 Bids submitted by a Joint Venture of two (02) or more firms specified in **Bidding Data**, shall comply with the following requirements:

- (a) the bid, and in case of a successful bid, the Form of Contract Agreement shall be signed by all members so as to be legally binding on all partners;
- (b) one of the joint venture partners shall be nominated as being in-charge; and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the joint venture partners;
- (c) the partner-in-charge shall always be duly authorized to deal with the Employer



regarding all matters related with and/or incidental to the execution of Works as per the terms and Conditions of Contract and in this regard to incur any and all liabilities, receive instructions, give binding undertakings and receive payments on behalf of the joint venture;

- (d) all partners of the joint venture shall at all times and under all circumstances be liable jointly and severally for the execution of the Contract in accordance with the Contract terms and a statement to this effect shall be included in the authorization mentioned under Sub- Para(b) above as well as in the Letter of Bid and in the Form of Contract Agreement (in case of a successful bid); and
- (e) a copy of the agreement entered into by the joint venture partners shall be submitted with the bid stating the conditions under which it will function, its period of duration, the persons authorized to represent and obligate it and which persons will be directly responsible for due performance of the Contract and can give valid receipts on behalf of the joint venture, the proportionate participation and corresponding duties & responsibilities of the several firms forming the joint venture, and any other information necessary to permit a full appraisal of its functioning. No amendments/ modifications whatsoever in the joint venture agreement shall be agreed to between the joint venture partners without prior written consent of the Employer.

12.3 The Bidder shall also submit proposals of work methods and schedules in sufficient detail to demonstrate the adequacy of the Bidders' proposal to meet the technical specifications and the completion time referred to in Sub-Clause IB 1.2 hereof.

IB.13 Bid Prices

- 13.1 The price and discount if any quoted by the Bidders in the Letter of Bid and in the Bill of Quantity shall conform to the requirement specified below:
- 13.2 The Bidder shall quote any discounts and the methodology for their application.
- 13.3 If bids are being invited for individual lots (contracts) or for any combination of lots, the Bidders can offer discounts for the individual lots (contracts) as well as for award of more than one Contract and shall specify in their bid.
- 13.4 Unless stated otherwise in the Bidding Documents, the Contract shall be for the whole of the Works as described in Sub-Clause IB.1.1 hereof, based on the unit rates and/or prices.
- 13.5 The Bidders shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by a Bidder will not be paid for by the Employer when executed and shall be deemed covered by rates and prices for other items in the Bill of Quantities.
- 13.6 All duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause, as on the date 28 days prior to the deadline for submission of bids shall be included in the rates and prices and the total Bid Price submitted by a Bidder.



Additional/reduced duties, taxes and levies due to subsequent additions or changes in legislation shall be reimbursed/ deducted as per Sub Clause 13.6 [Adjustment for Changes in Laws] of the Conditions of Contract.

- 13.7 The rates and prices quoted by the Bidders are subject to adjustment during the performance of the Contract in accordance with the provisions of Sub-Clause 13.7 [Adjustments for Changes in Cost] of the General Conditions of Contract. The Bidders shall furnish the prescribed information for the price adjustment formulae in Schedule-A to Bid, and shall submit with their bids such other requisite supporting information if required under the said Schedule.

IB.14 Currencies of Bid and Payment

- 14.1 The unit rates and the prices shall be quoted by the Bidder entirely PKR.

A Bidder expecting to incur expenditures in other currencies for inputs to the Works supplied from outside the Employer's country (referred to as the "Foreign Currency Requirements") shall indicate in Table III of Schedule-A to Bid the proportion of the Bid Price (excluding Provisional Sums) needed by him for the payment of such Foreign Currency Requirements; in such case the unit rates and the prices shall be quoted by the Bidder in Equivalent PKR.

- 14.2 The rates of exchange to be used by the Bidder for currency conversion shall be the TT Selling Rates published or authorized by the State Bank of Pakistan prevailing on the date twenty eight (28) days prior to the deadline for submission of bids. Such rates shall be notified by the Employer not later than fourteen (14) days prior to the deadline for submission of Bids.

For the purpose of payments, the exchange rates used in Bid preparation shall apply for the duration of the Contract.

IB.15 Bid Validity

- 15.1 Bids shall remain valid for the period stipulated in the *Bidding Data* after the Date of Bid Opening specified in Clause IB.23.
- 15.2 In exceptional circumstances, prior to expiry of the original Bid validity period, the Employer may request that the Bidders extend the period of validity for a specified additional period which shall in no case be more than the original Bid validity period. The request and the responses thereto shall be made in writing. A Bidder may refuse the request without forfeiting his Bid Security. A Bidder agreeing to the request will not be required or permitted to modify his Bid, but will be required to extend the validity of his Bid Security for the period of the extension, and in compliance with Clause IB.16 in all respects.

IB.16 Bid Security

- 16.1 Each Bidder shall furnish, as part of his Bid, a Bid Security in the amount stipulated in



the **Bidding Data** in Pak Rupees or an equivalent amount in a freely convertible currency.

- 16.2 The Bid Security shall be, at the option of the Bidder, in the form of Call Deposit Receipt (CDR)/ Pay Order or a Security issued in the prescribed form included in the Bidding Documents, by (a) a Scheduled Bank in Pakistan or (b) a foreign bank duly counter-guaranteed by a Scheduled Bank in Pakistan or (c) an Insurance Company listed in the **Bidding Data** and rated by PACRA/VIS of rating as provided in Table below in favour of the Employer valid for a period 14 days beyond the Bid Validity date. The Bid Security of Joint Venture shall be in the name of Joint Venture or Lead/either Firm of the JV or in ratio of shares of the individual JV partners, submitting the bid.

Bid Price (In Eq. million PKR)	Minimum Rating of Insurance Companies
Up to 1000	A (+)
1001 to no limit	AA
<i>[Note: Insurance Company includes Joint Ventures of Insurance Companies also]</i>	

- 16.3 Any Bid not accompanied by an acceptable Bid Security shall be rejected by the Employer as non-responsive.
- 16.4 The Bid Securities of the Bidders except the lowest three will be returned by the Employer within twenty-eight (28) days from the opening of Bids, provided a Bidder requests for the return of its Bid Security, or upon the expiry of original validity of Bid Security or as extended, whichever is earlier.
- 16.5 The Bid Security of the lowest three Bidders including the successful Bidder will be returned when the successful Bidder has furnished the required Performance Security.
- 16.6 The Bid Security may be forfeited:
- If the Bidder withdraws his Bid except as provided in Sub Clause IB 22.1;
 - If the Bidder does not accept the correction of his Bid Price pursuant to Sub Clause IB 28.2 hereof; or
 - In the case of successful Bidder, fails to furnish the required Performance Security.
- 16.7 In case of annulment, all Bids submitted and specially, bid securities, shall be returned to the Bidders within 14 days of annulment.

IB.17 Alternate Proposals by Bidder

- 17.1 Unless otherwise specified in the Bidding Data, alternative proposal(s) shall not be considered.
- 17.2 Should any Bidder consider that he can offer any advantages to the Employer by a modification to the designs, specifications or other conditions, he may, in addition to



his Bid to be submitted in strict compliance with the Bidding Documents, submit any alternative proposal(s) containing
(a) relevant design calculations; (b) technical specifications;
(c) proposed construction methodology; and (d) any other relevant details/conditions, provided always that the total sum entered on the Letter of Bid shall be that which represents complete compliance with the Bidding Documents.

- 17.3 Alternative proposal(s), if any, of the Bidder having submitted most advantageous Bid only may be considered by the Employer as the basis for the award of Contract to such Bidder.

IB.18 Format and Signing of Bid

- 18.1 Bidders are particularly directed that the amount entered on the Letter of Bid shall be for performing the Contract strictly in accordance with the Bidding Documents.
- 18.2 All Schedules to Bid are to be properly completed and signed.
- 18.3 No alteration is to be made in the Letter of Bid nor in the Schedules thereto except in filling up the blanks as directed. If any such alterations be made or if these instructions be not fully complied with, the Bid may be rejected.
- 18.4 Each Bidder shall prepare by filling in the forms completely and without alterations one (1) original and number of copies, specified in the Bidding Data, of the documents comprising the Bid as described in Clause IB.12 and clearly mark them "ORIGINAL" and "COPY" as appropriate. In the event of discrepancy between them, the original shall prevail.
- The Bidder shall also provide complete searchable PDF versions as well as Word, Excel, etc. versions of the Bid if so required by the Employer.
- 18.5 The original and all copies of the Bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder pursuant to Sub-Clause IB.12.1(d) hereof. All pages of the Bid shall be initialed and stamped by the person or persons signing the bid.
- 18.6 The Bid shall contain no alterations, omissions or additions, except to comply with instructions issued by the Employer, or as are necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by the person or persons signing the Bid.
- 18.7 Bidders shall indicate in the space provided in the Letter of Bid, their full and proper addresses at which notices may be legally served on them and to which all correspondence in connection with their Bids and the Contract is to be sent.
- 18.8 Bidders should retain a copy of the Bidding Documents as their file copy.
- 18.9 All documents executed outside Pakistan required to be submitted with the Bid must be certified by Pakistani Embassy in the respective country(ies).



D. SUBMISSION OF BIDS

IB.19 Sealing and Marking of Bids

19.1 Each Bidder shall submit his Bid as under:

- (a) ORIGINAL and each copy of the Bid shall be separately sealed and put in separate envelopes and marked as such.
- (b) The envelopes containing the ORIGINAL and copies will be put in one sealed envelope and addressed / identified as given in Sub Clause IB.19.2 hereof.

19.2 The inner and outer envelopes shall:

- (a) Be addressed to the Employer at the address provided in the ***Bidding Data***;
- (b) bear the specific identification of this bidding process as specified in the ***Bidding Data***; and
- (c) Provide a warning not to open before the time and date for Bid Opening, as specified in the ***Bidding Data***.

19.3 In addition to the identification required in IB 19.2 hereof, the inner envelope shall indicate the name and address of the Bidder to enable the Bid to be returned unopened in case it is declared “late” pursuant to Clause IB.21

19.4 If the outer envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the Bid.

IB.20 Deadline for Submission of Bids

- 20.1
- (a) Bids must be received by the Employer at the address specified no later than the time and date stipulated in the ***Bidding Data***.
 - (b) Bids with charges payable will not be accepted, nor will arrangements be undertaken to collect the Bids from any delivery point other than that specified above. Bidders shall bear all expenses incurred in the preparation and delivery of Bids. No claims will be entertained for refund of such expenses.
 - (c) Where delivery of a Bid is by mail and the Bidder wishes to receive an acknowledgment of receipt of such Bid, he shall make a request for such acknowledgment in a separate letter attached to but not included in the sealed Bid envelope.
 - (d) Upon request, acknowledgment of receipt of Bids will be provided to those making delivery in person or by messenger.

20.2 The Employer may, at his discretion, extend the deadline for submission of Bids by issuing an amendment in accordance with Clause IB.9, in which case all rights and obligations of the Employer and the Bidders previously subject to the original deadline will thereafter be subject to the deadline as extended.

**IB.21 Late Bids**

- 21.1 (a) Any Bid received by the Employer after the deadline for submission of Bids prescribed in Clause IB.20 shall be declared late, rejected and returned unopened to such Bidder.
- (b) Delays in the mail, delays of person in transit, or delivery of a Bid to the wrong office shall not be accepted as an excuse for failure to deliver a Bid at the proper place and time. It shall be the Bidder's responsibility to determine the manner in which timely delivery of his Bid will be accomplished either in person, by messenger or by mail.

IB.22 Modification, Substitution and Withdrawal of Bids

- 22.1 Any Bidder may modify, substitute or withdraw his Bid after Bid submission provided that the modification, substitution or written notice of withdrawal is received by the Employer prior to the deadline for submission of Bids.
- 22.2 The modification, substitution, or notice for withdrawal of any Bid shall be prepared, sealed, marked and delivered in accordance with the provisions of Clause IB.19 with the outer and inner envelopes additionally marked "MODIFICATION", "SUBSTITUTION" or "WITHDRAWAL" as appropriate.
- 22.3 No Bid may be modified by a Bidder after the deadline for submission of Bids except in accordance with IB 22.1 and 28.2.
- 22.4 Withdrawal of a Bid during the interval between the deadline for submission of Bids and the expiration of the period of Bid validity specified in the Form of Bid may result in forfeiture of the Bid Security in pursuance to Clause IB.16.

E. BID OPENING AND EVALUATION**IB. 23 Bid Opening**

- 23.1 The Employer will open the Bids including withdrawals, substitution and modifications made pursuant to Clause IB.22, in the presence of Bidders' representatives who choose to attend, at the time, date and location stipulated in the Bidding Data. The Bidders' representatives who are present shall sign a register evidencing their attendance.
- 23.2 Envelopes marked "MODIFICATION", "SUBSTITUTION" or "WITHDRAWAL" shall be opened and read out first. Bids for which an acceptable notice of withdrawal has been submitted pursuant to Clause IB.22 shall not be opened. Only bids that are opened and read out at Bid opening shall be considered further.
- 23.3 The Bidder's name, total Bid Price and price of any alternative proposal(s), any discounts, Bid modifications, substitution and withdrawals, the presence or absence of Bid security, and such other details as the Employer may consider appropriate, will be



announced by the Employer at the opening of Bids. Only discounts and alternative proposals read out at Bid opening shall be considered for evaluation. The Letter of Bid and the Summary Bill of Quantities are to be initialed by representative(s) of the Employer attending Bid opening. The Employer shall neither discuss the merits of any Bid nor reject any Bid (except for late Bids, in accordance with Sub-Clause IB 21.1).

- 23.4 The Employer shall prepare minutes of the Bid opening, including the information disclosed to those present in accordance with the Sub-Clause IB.23.3.

IB.24 Process to be Confidential

- 24.1 Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of Contract shall not be disclosed to Bidders or any other person not officially concerned with such process before the announcement of the result of Bid evaluation in the form of final evaluation report giving justification for acceptance or rejection of Bids which shall be done at least fifteen (15) days prior to Award of Contract. The announcement to all Bidders will include table(s) comprising read out prices, discounted prices, price adjustments made, final evaluated prices and recommendations against all the Bids evaluated. Any effort by a Bidder to influence the Employer's processing of Bids or Contract award decisions may result in the rejection of such Bidder's Bid. Whereas any Bidder feeling aggrieved may lodge a written complaint not later than five (5) days after the announcement of the final evaluation report.

IB.25 Clarification of Bids

- 25.1 To assist in the examination, evaluation and comparison of Bids, the Employer may, at his discretion, ask any Bidder for clarification of his Bid, including breakdowns of unit rates and lump sum prices. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The request for clarification and the response shall be in writing. No change in the price or substance of the Bid shall be sought, offered or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids in accordance with Clause IB.28.
- 25.2 The Employer may, at his discretion, ask any Bidder for confirmation/submission of missing information to clarify its Bid. However, the Employer does not have an obligation to request any additional information or clarification with respect to missing or deficient information in a Bid. The Employer may reject any Bid as non-responsive if found materially incomplete, obscure, irregular or omitting any material information required to be submitted in accordance with the Bidding Documents.
- 25.3 If a Bidder does not provide clarifications of its Bid by the date and time set reasonably (not less than seven (7) days) in the Employer's request for clarification, the Employer may proceed with the evaluation based on the information submitted in the Bid without waiting for the Bidder's response.

**IB.26 Examination of Bids and Determination of Responsiveness**

- 26.1 Prior to the comparison of Bids, the Employer will determine whether each Bid is substantially responsive to the requirements of the Bidding Documents.
- 26.2 The Employer's determination of a Bid's responsiveness is to be based on the contents of the Bid itself, as defined in Sub- Clause IB.12.
- 26.3 A substantially responsive Bid is one which meets the requirements of the Bidding Documents, without material deviation, reservation or omission. A material deviation, reservation or omission is one that,
- (a) if accepted, would:
 - (i) affect in any substantial way the scope, quality or performance of the Works; or
 - (ii) limit in any substantial way, inconsistent with the Bidding Documents, the Employer's rights or the Bidder's obligations under the proposed Contract; or
 - (b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive Bids.
- 26.4 During the evaluation of Bids, the following definitions apply:
- (a) "Deviation" is a departure from the requirements specified in the Bidding Documents;
 - (b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Documents; and
 - (c) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Documents.
- 26.5 The Employer shall examine the technical aspects of the Bid submitted in accordance with Sub-Clause IB.12.1(f), in particular, to confirm that all requirements stated in Specifications have been met without any material deviation, reservation or omission.
- 26.6 If a Bid is not substantially responsive to the requirements of the Bidding Documents, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation, reservation or omission.

IB.27 Nonmaterial, Nonconformities

- 27.1 Provided that a Bid is substantially responsive, the Employer may waive any nonconformities in the Bid.
- 27.2 Provided that a Bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial, nonconformities in the Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with



the request may result in the rejection of its Bid.

- 27.3 Provided that a Bid is substantially responsive, the Employer shall rectify quantifiable non-material nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component, by adding the average price of the item or component quoted by other lowest two evaluated substantially responsive Bidders. If the price of the item or component cannot be derived from the price of other substantially responsive Bids, the Employer shall use a suitable CSR, adjusted to the date 28 days earlier to the Bid submission date or its best assessment.

IB.28 Correction of Arithmetic Errors

- 28.1 Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:
- (a) Where there is a discrepancy between the amounts in figures and in words, the amount in words will govern; and
 - (b) Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern, unless in the opinion of the Employer there is an obviously gross misplacement of the decimal point in the unit rate, in which case the line item total as quoted will govern and the unit rate will be corrected.
 - (c) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected.
- 28.2 The amount stated in the Letter of Price Bid will be adjusted by the Employer in accordance with the above procedure for the correction of errors and with the concurrence of the bidder, shall be considered as Binding upon the Bidder. If the Bidder does not accept the corrected Bid Price, his Bid will be rejected, and the Bid Security shall be forfeited in accordance with IB.16.6 (b) hereof.

IB.29 Evaluation and Comparison of Bids

- 29.1 The Employer will evaluate and compare only the Bids determined to be substantially responsive in accordance with Clause IB.26. The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.
- 29.2 In evaluating and comparing the Bids, the Employer will determine for each Bid the evaluated Bid Price by adjusting the Bid Price as follows:
- (a) Making any correction for arithmetic errors pursuant to Clause IB.28;
 - (b) price adjustment due to discounts offered in accordance with Sub-Clause IB.23.3;
 - (c) excluding Provisional Sums and the provision, if any, for contingencies in the



Summary Bill of Quantities, but including competitively priced daywork;

- (d) making an appropriate price adjustment for any quantifiable nonmaterial nonconformities in accordance with Sub-Clause IB.27.3;
 - (e) the additional evaluation factors are specified in Section Evaluation Criteria and Qualification Updating Forms.
- 29.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in Bid evaluation.

IB.30 Abnormally Low Bids

- 30.1 If the Bid Price of the successful Bidder is more than 15% below the lower of the Employer's estimate of the cost of work to be performed under the Contract or average of other lowest two evaluated substantially responsive Bids, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Employer may require an additional Performance Security by 10% of the difference of the Bid Price as determined hereinabove up to issuance of Taking Over Certificate at the expense of the successful Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract. The Bids having Bid Price lower than 25% shall be liable to be rejected.

IB.31 Unbalanced or Front-Loaded Bids

- 31.1 If the Bid of the successful Bidder is seriously unbalanced (Front Loaded) in relation to the average of other evaluated substantially responsive Bids, the Employer during execution of contract may pay against measured quantities of significantly higher quoted line item(s) rate(s) with respect to same line item(s) rate(s) determined from the average of other lowest two evaluated substantially responsive Bids as instructed by the Engineer. The balance line item(s) rate(s) may be paid against the same measured quantities at the time of issuance of Taking Over Certificate or as instructed by the Engineer.

F. AWARD OF CONTRACT

IB.32 Award Criteria

- 32.1 Subject to Clauses IB.33 and IB.39, the Employer will award the Contract to the Bidder whose Bid has been determined as most advantageous Bid (substantially responsive to requirements of the Bidding Documents with the lowest evaluated Bid Price).

IB.33 Employer's Right to Annul the Bidding Process Bids

- 33.1 Notwithstanding Clause IB.32, the Employer reserves the right to annul the bidding process and reject all Bids, at any time prior to award of Contract, without thereby incurring any liability to the affected Bidders or any obligations.



The Employer shall upon request communicate to any Bidder who submitted a Bid, the grounds for its rejection of all Bids but is not required to justify those grounds. Rejection of all Bids shall be notified to all Bidders promptly.

IB.34 Notification of Award

34.1 Prior to expiration of the period of Bid validity prescribed by the Employer, the Employer will notify the successful Bidder in writing (“Letter of Acceptance”) that his Bid has been accepted. This letter shall name the sum which the Employer will pay the Contractor in consideration of the execution and completion of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Conditions of Contract called the “Accepted Contract Amount”).

The Letter of Acceptance will also state the remedies with respect to Sub-Clauses IB.30 & IB.31 if applicable.

34.2 No negotiation with the Bidder having submitted most advantageous Bid or any other Bidder shall be permitted, however, Employer may have clarification meetings before issuing Letter of Acceptance to get clarified any item in the Bid evaluation report.

34.3 The Letter of Acceptance/ notification of award and its acknowledgement/acceptance by the Bidder will constitute the formation of the Contract, binding the Employer and the Bidder till signing of the formal Contract Agreement.

34.4 Upon furnishing by the successful Bidder of a Performance Security, the Employer will promptly notify the other Bidders that their Bids have been unsuccessful and return their Bid securities in accordance with Sub-Clause IB.16.5.

IB.35 Performance Security

35.1 The successful Bidder shall furnish to the Employer a Performance Security in the form and the amount stipulated in the Conditions of Contract and additional Performance Security if applicable under IB.30 as stated in the Letter of Acceptance, within a period of 28 days after the receipt of Letter of Acceptance.

35.2 Failure of the successful Bidder to comply with the requirements of Sub Clause IB.35.1 or Clauses IB.36 or IB.38 shall constitute sufficient grounds for the annulment of the award, forfeiture of the Bid security and to award the Contract to the Bidder having submitted next advantageous Bid.

IB.36 Signing of Contract Agreement

36.1 Within 14 days from the date of furnishing of acceptable Performance Security under the Conditions of Contract, the Employer will notify the successful Bidder to depute its representative with appropriate Power of Attorney to sign the Contract Agreement in the form provided in the Bidding Documents, incorporating all agreements between the parties.



- 36.2 The formal Agreement between the Employer and the successful Bidder shall be executed within 14 days of the receipt of the above stated notification by the successful Bidder from the Employer.

IB.37 Integrity Pact

- 37.1 The Bidder shall sign and stamp the Integrity Pact provided at Schedule-J to Bid in the Bidding Documents for all Punjab Government procurement contracts exceeding PKR ten million. Failure to provide such Integrity Pact shall make the Bidder non-responsive.

IB.38 Instructions not Part of Contract

- 38.1 Bids shall be prepared and submitted in accordance with the Instructions to Bidders which are provided to assist the Bidders in preparing Bids but do not constitute part of the Contract.

IB.39 Corrupt and Fraudulent Practices

- 39.1 The Employer will reject a Bid if it determines that the Bidder recommended for award, or any of its personnel, or its agents, or its sub-contractors, service providers, suppliers and/or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract under this bidding.
- 39.2 The Employer will blacklist and hence forthwith debar a Constructor or individual, at any time, in accordance with the prevailing Public Procurement Rules 2004.

**Bidding Data**

The following specific data for the Works to be bid shall complement, amend, or supplement the provisions in the Instructions to Bidders. Wherever there is a conflict, the provisions herein shall prevail over those in the Instructions to Bidders.

IB Clause Reference	Bidding Data
1.1	Name and address of the Employer: Name: <i>Ravi Urban Development Authority (RUDA)</i> Address: <i>Engineering Wing of RUDA, 5-C Muslim Town, Facing Canal, Near Punjab Group of Colleges, Lahore.</i>
1.1	Name of the Project & Summary of the Works: Project: Construction of Bridge to Jahangir Tomb Over Ravi River Brief summary of work under this contract shall be: <ul style="list-style-type: none"> • At Grade Improvement Lahore Ring Road • Construction of Bridge • Construction of Main Parking • Improvement of Existing Parking
1.2	Time for Completion for the Works: 540 days
1.3	New Sub-Clause 1.3 is added: “Bids shall be invited on Single Stage Two Envelope Bidding Process.”
2.1	Name of the Borrower/Source of Funding: <i>Employer’s Own Sources</i>
3.1	Sub-paras (a) to (d) are deleted in their entirety and substituted with the following: <ol style="list-style-type: none"> a) Bids are invited according to RUDA Procurement Regulations 2022 (amended); b) Duly licensed by the Pakistan Engineering Council (PEC) in Category C-A having specialization in codes: “CE-01, CE-02 / CE-02(i) / CE-02(ii), CE-10 (General Civil Engineering Works) & EE-11 (vi) (General Electrical works Only). c) Foreign Constructor can submit provisional license with its Bid but the Foreign Constructor will be required to submit standard license after award of Contract and before start of work. <p>Foreign Constructor shall not be eligible to participate in bidding individually. Foreign Constructor shall enter into joint venture with Pakistani Constructor registered with the Pakistan Engineering Council in equivalent/compatible category and</p>



IB Clause Reference	Bidding Data
	<p>submit the joint venture agreement to the Employer before participating in bidding in accordance with PEC Construction and Operation of Engineering Works Bye-laws, 1987;</p> <p>No bidder, whether foreign or local, shall be permitted to participate in the bidding process on an individual basis. Local bidders shall be required to form a Joint Venture (JV) with a foreign firm in order to be eligible to participate in the bidding process.</p> <p>d) In addition to above, bidders should meet the following eligibility criteria:</p> <ul style="list-style-type: none"> • Registration with Income Tax & Sales Tax Department (valid income tax & Sales Tax certificate is required); • Firm(s) including all JV members should not have Litigation History in which Decision has been given against the firm(s); <p>The Firm(s) shall not be eligible to participate if debarred / blacklisted by any Government / Semi Government / Public Department / International Body(ies).</p> <p>e) Bidder (Single Entity /JV /Consortium of two or more members) must meet qualification requirements given in Schedules K & L to Bid.</p> <p>Minimum 65% marks are necessary in category i.e., (Schedule – K to Bid and Schedule-L to Bid) and Minimum 70% overall marks are necessary for qualification. If firm / company or organization formed as JV or Consortium of two or more members, wishes to Bid, the lead member must secure minimum 50% marks in category i.e., (Schedule – K to Bid and Schedule-L to Bid).</p> <p><i><u>Note: The Bidder (Single Entity /JV/Consortium of two or more members), must fulfil all the specialized codes collectively as mentioned in sub-para 3.1(b) and must fulfil sub-para 3.1(d) & 3.1(e) individually, by each member of JV/Consortium of two or more members. PEC registration is mandatory for all members.</u></i></p>
7.1	<p>Words ‘Letter of Bid’ appearing at number 7 is replaced with “Letter of Technical Bid and Letter of Price Bid”.</p> <p>The following document is added at the end: 11. Environmental Management Plan.</p>



IB Clause Reference	Bidding Data
8.1	Time limit for clarification: <i>03 days before deadline for submission of Bids.</i>
8.3	Venue, time, and date of the Pre-Bid meeting: <i>Pre-Bid Meeting shall be held on date and venue as mentioned in advertisement.</i>
9.3	Number of days: <i>7 calendar days</i>
11.1	Bid language: <i>The language of the Bidding Documents is English.</i>
12.1	In sub-para (a), words ‘Letter of Bid’ are replaced with “Letter of Technical Bid and Letter of Price Bid”. Following Schedules are added in sub-para (f). “Schedule-K to Bid: Financial Competence and Access to Financial Resources Schedule-L to Bid: Past Performance, Current Commitment, Equipment & Personnel Qualification and Experience”
12.1 (A)	The following text is added: The Bid shall comprise two envelopes submitted simultaneously, one called the Technical Bid containing the document as listed under para (1) and the other called the Price Bid containing the documents listed in para (2) hereunder. (1) Technical Bid Shall comprise the following documents duly filled and signed - <i>Letter of Technical Bid</i> - <i>Bid Security</i> IB.16 - <i>Written confirmation authorizing the signatory of the Bid to commit the Bidder</i> IB.18 - <i>Pending litigation information</i> On Rs. 200 E-stamp paper - <i>Proposed Construction</i> Schedule – C to Bid



IB Clause Reference	Bidding Data
	<p><i>Schedule</i></p> <ul style="list-style-type: none"> <li>- <i>Method of Performing the Work (as filled by Bidder)</i> Schedule – D to Bid <li>- <i>List of Major Equipment – Related Items (as filled by Bidder)</i> Schedule – E to Bid <li>- <i>Organization Chart for Supervisory Staff (as filled by Bidder)</i> Schedule – F to Bid <li>- <i>List of Sub-contractors (as filled by the Bidder)</i> Schedule – G to Bid <li>- <i>Construction Camp and Housing Facilities (as filled by Bidder)</i> Schedule – I to Bid <li>- <i>Integrity Pact</i> Schedule – J to Bid <li>- <i>Financial Competence and Access to financial Resources</i> Schedule – K to Bid <li>- <i>Past Performance, Current Commitment, Equipment & Personnel Qualification and Experience</i> Schedule – L to Bid <li>- <i>General Conditions (GC)</i> Refer Volume-I <li>- <i>Particular Conditions (PC)</i> Refer Volume-I <li>- <i>Part A – Contract Data</i> <li>- <i>Particular Conditions (PC)</i> Refer Volume-I <li>- <i>Part B – Special</i>



IB Clause Reference	Bidding Data
	<p><i>Provisions</i></p> <ul style="list-style-type: none"> - <i>Specifications Part A - Specific Provisions</i> Refer Volume-III - <i>Specifications Part B - Technical Provisions</i> Refer Volume-III - <i>Drawings</i> Refer Volume-IV <p>(2) Price Bid Shall comprise the following documents duly filled and signed</p> <ul style="list-style-type: none"> - <i>Letter of Price Bid</i> - <i>Foreign Currency Requirement</i> Not Used - <i>Schedule of Adjustment Data</i> A-1 Schedule – A to Bid - <i>Schedule of Adjustment Data</i> A-2 Schedule – A to Bid - <i>Schedule of Adjustment Data</i> A-3 Schedule – A to Bid Not Used - <i>Schedule of Adjustment Data</i> A-4 Schedule – A to Bid Not Used - <i>Schedule of Adjustment Data</i> A-5 Schedule – A to Bid Not Used - <i>Bill of Quantities</i> Schedule – B to Bid (Refer Volume – II) - <i>Estimated Progress Payment</i> Schedule – H to Bid



IB Clause Reference	Bidding Data
12.2	Maximum number of JV / Consortium Members shall be 03 (Three Nos.)
12.3	Sub-clause is deleted in its entirety and replaced with the following: “The Bidder shall furnish, as part of the Technical Bid, a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Bidding Forms, in sufficient detail to demonstrate the adequacy of the Bidder’s proposal to meet the work requirements and the completion time referred to in Sub-Clause 1.2 hereof.”
12.4	New Sub-clause is added: “The Bid shall comprise two envelopes submitted simultaneously, one called the Technical Bid and the other the Price Bid, containing the documents as listed under Sub – Clause 12.1(A) above. Both envelopes are to be enclosed together in an outer single envelope called the Bid. Each Bidder shall furnish all the documents as specified in Bidding Data 12.1(A).”
13.1	Words ‘Letter of Bid’ appearing in second line are replaced with “Letter of Price Bid”.
14.1	Existing text is deleted and replaced with the following: “Bidders to quote entirely in PKR Rupees. Foreign Currency Requirements are not applicable.”
14.2	Existing text is deleted and replaced with the following: “Payment under this contract shall be made entirely in PKR Rupees.”
15.1	The Bids shall remain valid for 90 days after the date of opening of Bid.
16.1	Amount of Bid Security: <i>Two Hundred and Fifty million (Rs. 250,000,000/-)</i>
16.2	Sub-clause is deleted in its entirety and replaced with the following: “The Bid Security shall be in the form of Bank Guarantee by (a) a Scheduled Bank in Pakistan or (b) a foreign bank duly counter-guaranteed by a Scheduled Bank in Pakistan in favour of the Employer valid for a period 28 days beyond the Bid Validity date or Insurance Guarantee by AA (+) rated company by PACRA/VIS. The Bid Security of Joint Venture shall be in the name of Joint Venture or Lead on behalf of JV.”
16.4	Sub-clause is deleted in its entirety and replaced with the following: “The Bid securities of unsuccessful Bidders will be returned as promptly as possible, but not later than 28 days after the expiration of the period of Bid Validity.”



IB Clause Reference	Bidding Data
16.5	Sub-clause is deleted in its entirety and replaced with the following: “The Bid Security of the successful Bidder will be returned when the Bidder has furnished the required Performance Security and signed the Contract Agreement.”
16.6	Sub-clause (c) is deleted in its entirety and replaced with the following: In the case of successful Bidder, fails within the specified time limit to: (i) Furnish the required Performance Security; (ii) Sign the Contract Agreement. (iii) Furnish the required JV agreement (if applicable) within 7 days of the receipt of letter of acceptance.”
17	<i>Alternative Proposal(s) by the Bidder shall not be considered.</i>
18.1	Words “Letter of Bid” are amended to read as “Letter of Price Bid”.
18.3	Words “Letter of Bid” are amended to read as “Letter of Technical Bid and Letter of Price Bid”.
18.4	Sub-clause is deleted in its entirety and replaced with the following: “The Bidder shall prepare one original of the Technical Bid and one original of the Price Bid comprising the documents as described in sub-clause 12.1 (A) (1) & 12.1 (A) (2) Bidding Data and clearly mark it “ORIGINAL - TECHNICAL BID” and “ORIGINAL - PRICE BID”. In addition, the Bidder shall submit two (02) number of copies of the Bid as given in the Bidding Data and clearly mark each of them “COPY.” In the event of any discrepancy between the original and the copies, the original shall prevail. The envelope containing the Price Bid shall also be marked with a caution: “Not to be opened unless the Technical Bid is opened and evaluated”.
18.7	Words ‘Letter of Bid’ are replaced with “Letter of Technical Bid and Letter of Price Bid”.
19.1	Sub-para (c) is added: c) The envelope containing Technical Bid should comprise the documents listed in IB 12.1 (A) (1) & the Price Bid comprise the documents listed in IB 12.1 (A) (2) which shall be placed in separate envelopes in accordance with IB 12.1”.
19.2(a)	Employer's address for the purpose of Bid submission: Mentioned in Advertisement.



IB Clause Reference	Bidding Data
19.2(b)	Name and Number of the Contract: <i>Name: Construction of Bridge to Jahangir Tomb Over Ravi River.</i>
19.2(c)	Warning: Not to open before the time and date set for bid opening.
20.1(a)	Deadline for submission of Bids: The Bids must be submitted by no later than the date and time as mentioned in advertisement.
23	<p>Whole clause IB 23 is deleted in its entirety and substituted with the following:</p> <p>23.1 The Employer will open the Technical Bids in public at the address, date and time specified in the Bidding Data in the presence of Bidders` designated representatives who choose to attend. The Price Bids will remain unopened and will be held in custody of the Employer until the specified time of their opening.</p> <p>23.2 First, envelopes marked “WITHDRAWAL” shall be opened and read out and the envelope with the corresponding Bid shall not be opened, but returned to the Bidder. No Bid withdrawal shall be permitted unless the corresponding Withdrawal Notice contains a valid authorization to request the withdrawal and is read out at Bid opening.</p> <p>23.3 Second, outer envelopes marked “SUBSTITUTION” shall be opened. The inner envelopes containing the Substitution Technical Bid and/or Substitution Price Bid shall be exchanged for the corresponding envelopes being substituted, which are to be returned to the Bidder unopened. Only the Substitution Technical Bid, if any, shall be opened, read out, and recorded. Substitution Price Bid will remain unopened in accordance with IB.22. No envelope shall be substituted unless the corresponding Substitution Notice contains a valid authorization to request the substitution and is read out and recorded at Bid opening.</p> <p>23.4 Next, outer envelopes marked “MODIFICATION” shall be opened. No Technical Bid and/or Price Bid shall be modified unless the corresponding Modification Notice contains a valid authorization to request the modification and is read out and recorded at the opening of Technical Bids. Only the Technical Bids, both Original as well as Modification, are to be opened, read out, and recorded at the opening. Price Bids, both Original and Modification, will remain unopened in accordance with IB 23.1. The Bidder’s representatives who are present shall be requested to sign the record. The omission of a Bidder’s signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.</p> <p>23.5 Other envelopes holding the Technical Bids shall be opened</p>



IB Clause Reference	Bidding Data
	<p>one at a time, and the following are read out and recorded:</p> <ul style="list-style-type: none"> (a) the name of the Bidder; (b) whether there is a modification or substitution; (c) the presence of a Bid Security, if required; and (d) Any other details as the Employer may consider appropriate. <p>No Bid shall be rejected at the opening of Technical Bids except for late Bids, in accordance with IB 21.1. Only Technical Bids read out and recorded at Bid opening, shall be considered for evaluation.</p> <p>23.6 Preliminary Examination of Technical Bids</p> <p>(a) Prior to the detailed technical evaluation of bids, the Employer will determine the basic eligibility requirement set out under sub-clause BD 3.1 & submission of all completely filled in and signed documents listed in sub-clause 12.1 (A). The bidder qualifying the requirements mentioned under these sub-clauses and clause IB 26 shall be considered as substantially responsive and shall be considered for detailed technical evaluation.</p> <p>The Employer shall then examine qualification and experience Data as per Schedule-K & L to Bid submitted by the Bidder. The Technical Bid examination of those Bidders only shall be considered further who is substantially responsive and meeting the minimum requirement as mentioned in Schedule-K & L to Bid.</p> <p>23.7 The Employer shall confirm that all the documents and information have been provided for evaluation of Technical Bid as required under these Bidding documents.</p> <p>23.8 At the end of the evaluation of the Technical Bids, the Employer will invite only those Bidders who have submitted substantially responsive Technical Bids and who have been determined as being qualified for award to attend the opening of the Price Bids. The date, time, and location of the opening of Price Bids will be advised in writing by the Employer. Bidders shall be given reasonable notice for the opening of Price Bids.</p> <p>23.9 The Employer will notify Bidders in writing who have been rejected on the grounds of their Technical Bids being non-responsive to the requirements of the Bidding Document and return their Price Bids unopened before inviting others, who are determined as being qualified, to attend the opening of Price Bids.</p> <p>23.10 The Employer shall conduct the opening of Price Bids of all Bidders who submitted substantially responsive Technical Bids, publicly in the presence of Bidders` representatives who choose to attend at the address, date and time specified by the Employer. The Bidder`s representatives who are present shall be requested to sign a register evidencing their attendance.</p>



IB Clause Reference	Bidding Data
	<p>23.11 All envelopes containing Price Bids shall be opened one at a time and the following are read out and recorded:</p> <ul style="list-style-type: none"> (a) The name of the Bidder; (b) Whether there is a modification or substitution; (c) The Bid Prices, including any discounts and alternative offers (if permissible); and (d) Any other details as the Employer may consider appropriate. <p>Only Price Bids and discounts, read out and recorded during the opening of Price Bids shall be considered for evaluation. No Bid shall be rejected at the opening of Price Bids.</p> <p>23.12 If this Bidding Document allows Bidders to quote separate prices for different contracts, and the award to a single Bidder of multiple contracts, the methodology to determine the lowest evaluated price of the contract combinations is that which is most economical to the Employer.</p> <p>23.13 The Employer shall prepare minutes of the Bid opening of Technical and Price Bids, including the information disclosed to those present in accordance with the Sub-Clauses IB.23.5 & 23.11.</p> <p>Nevertheless, in the process of evaluation of price bid, employer will examine that all the documents listed in 12.1 (A)(2) hereof have been submitted.</p>
26.3	<p>Text of opening paragraph is amended as under: “A substantially responsive Bid is one which (i) meets the eligibility requirements as per Clause IB.3.1 (ii) contains all the documents as given in Sub-Clause IB.12.1(A) of the Bidding Data (iii) includes signed Integrity as per Clause IB.37 (iv) conforms to all the terms and conditions and specifications of the Bidding Documents, without material deviation, reservation or omission. A material deviation is one that:”</p>
26.5	<p>In second line, the text “Sub-Clause IB.12.1(f)” is replaced with “schedule K & L to Bid”.</p>
29.1	<p>Word “price” is placed after words “only the” in first line.</p>
35.1	<p>The successful Bidder shall provide to the Employer a Performance Security 10% in the form of a Bank Guarantee from any Scheduled Bank in Pakistan or a foreign bank duly counter-guaranteed by a Scheduled Bank in Pakistan within a period of seven (07) days after the receipt of Letter of Acceptance or Insurance Guarantee by Companies having rating AA (+) rated by PACRA/VIS. Hence, total amounting to ten (10) percent of the Contract Price stated in the Letter of Acceptance.</p>



IB Clause Reference	Bidding Data
36.1	Word “14 days” is replaced with Word “7 days”.
39.2	In last line words ‘prevailing Public Procurement Rules 2004’ are replaced with “relevant RUDA Procurement Regulations “
40	<p>The following clause is added:</p> <p>IB. 40 General Performance of the Bidders</p> <p>40.1 The Employer reserves the right to obtain information regarding performance of the bidders on their previously awarded contracts/works. The Employer may in case of consistent poor performance of any Bidder as reported by the employers of the previously awarded contracts, interalia, reject his bid and/or refer the case to the Pakistan Engineering Council (PEC). Upon such reference, PEC in accordance with its rules, procedures and relevant laws of the land take such action as may be deemed appropriate under the circumstances of the case including black listing of such Bidder and debarring him from participation in future bidding for similar works."</p>
41	<p>The following clause is added:</p> <p>IB.41 Conditional Bid</p> <p>Any Bid determined to be conditional shall be summarily rejected and will result in the disqualification of the Bidder from the bidding process.</p>
42	<p>The following clause is added:</p> <p>IB.42 Language of the documents submitted with the bid</p> <p>The Bid, and all correspondences and documents related to the bidding process between the Applicant and the Procuring Entity shall be in the English language. In case any document/information furnished by the Applicant is in a language other than English, it will need to be accompanied by an English translation (duly notarized by a Notary Public and attested by Pakistan Embassy/Consulate and Ministry of Foreign Affairs, Pakistan in the country of origin unless the Applicant submits a Foreign Apostille Certificate in accordance with the applicable laws) of its pertinent passages for the purposes of interpretation and evaluation of the Prequalification Application by the Procuring Entity. In case of any discrepancy, the English translation shall prevail</p>



EVALUATION CRITERIA AND QUALIFICATION UPDATING FORMS



Bidders Qualification Updating Forms

To establish its qualifications to perform the contract in accordance with Section (Evaluation Criteria and Qualification Updating Forms) the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder.





Form ELI -1.1

Bidder Information Form

Date:

Bid Reference No. (if any) and title:

Page _____ of _____ pages

Bidder's name
In case of Joint Venture (JV), name of each member:
Bidder's country of registration:
Bidder's year of incorporation:
Bidder's legal address:
Bidder's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents, in case of JV, JV agreement, in accordance with Sub-Clause IB 3.1.



Form ELI -1.2

Bidder's JV Information Form

Not Applicable





Form CON – 1

Pending Litigation

Bidder’s Name.....

Date:

JV Member’s Name:

Bid Reference No. (if any) and title.....

Page..... of.....pages

Pending Litigation, in accordance with Eligibility and Qualification Criteria			
Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), Eq. PKR (exchange rate)
		Contract Identification: _____ Name of Employer: _____ Address of Employer: _____ Matter in dispute: _____ Party who initiated the dispute: Status of dispute: _____	
		Contract Identification: Name of Employer: Address of Employer: Matter in dispute: Party who initiated the dispute: Status of dispute:	



Form FIN – 3.1:

Financial Situation and Performance

Bidder’s Name:

Date:.....

JV Member’s Name:.....

Bid Reference No. (if any) and Title:.....

Page.....of.....pages

• **Financial Data**

Type of Financial information in (currency)	Historic information for last year, (amount in currency, currency, exchange rate*, Eq. PKR)
Statement of Financial Position (Information from Balance Sheet)	
Total Assets (TA)	
Total Liabilities (TL)	
Total Equity/Net Worth (NW)	
Current Assets (CA)	
Current Liabilities (CL)	
Working Capital (WC)	
Information from Income Statement	
Total Revenue (TR)	
Profits Before Taxes (PBT)	
Cash Flow Information	
Cash Flow from Operating Activities	

• **Financial documents**

The Bidder and its parties shall provide copies of financial statements for last year pursuant to Eligibility and Qualification Criteria, Sub-factor 3.1. The financial statements shall:

- (a) reflect the financial situation of the Bidder or in case of JV member, and not an affiliated entity (such as parent company or group member).



- (b) be independently audited or certified in accordance with local legislation.
- (c) be complete, including all notes to the financial statements.
- (d) correspond to accounting periods already completed and audited.
- Attached are copies of financial statements¹ for the last year required above; and complying with the requirements.
- If the most recent set of financial statements is for a period earlier than 12 months from the date of bid, the reason for this should be justified.





Form FIN – 3.2:

Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as specified in Eligibility and Qualification Criteria.

Financial Resources		
No.	Source of financing	Amount (Eq. PKR)
1		
2		
3		



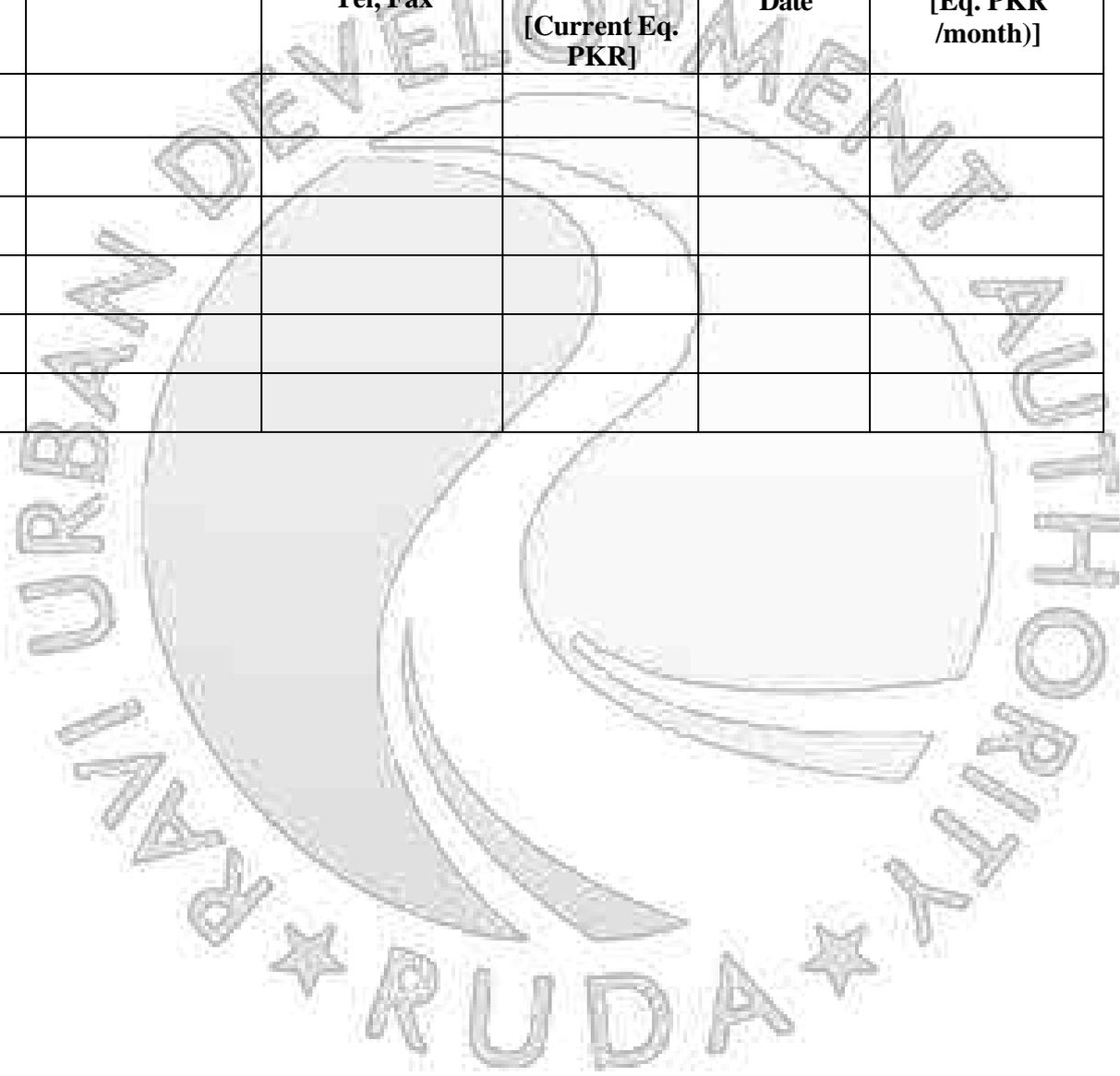


Form FIN – 3.3:

Current Contract Commitments / Works in Progress

Bidders and each member to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Current Contract Commitments					
No.	Name of Contract	Employer’s Contact Address, Tel, Fax	Value of Outstanding Work [Current Eq. PKR]	Estimated Completion Date	Average Monthly Invoicing Over Last Six Months [Eq. PKR /month]
1					
2					
3					
4					
5					





**LETTER OF TECHNICAL BID
&
LETTER OF PRICE BID
AND
SCHEDULES TO BID**



LTB-1

Letter of Technical Bid

Date:

Bid Reference No:

(Name of Contract/Works)

To:

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents as per 12.1(A)(1) provided in **Bidding Data**, including Addenda issued in accordance with Instructions to Bidders (IB) 9 for the execution of Works;
- (b) We offer to execute and complete in conformity with the Bidding Documents the following Works:
- (c) Our Bid consisting of the Technical Bid and the Price Bid shall be valid for a period of days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (d) We meet the eligibility requirements in accordance with IB.3.
- (e) We, including any Subcontractors for any part of the Contract, are not debarred/ blacklisted by the Employer, any Government/Semi Government/Public Department in Pakistan or foreign country, international organizations or other foreign institutions.
- (f) Our subcontractors or suppliers for any part of the Contract, if any, shall have nationalities from eligible countries, in accordance with IB.4.4.
- (g) We understand that all the Schedules attached hereto form part of this Bid.
- (h) We undertake, if our Bid is accepted, to commence the Works and to complete the whole of the Works comprised in the Contract within the time stated in Contract Data.
- (i) We agree to abide by this Bid for the period of days, inclusive of days beyond Bid validity period as mentioned in and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
- (j) Unless and until a formal Agreement is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.
- (k) We do hereby declare that the Bid is made without any collusion, comparison of figures or arrangement with any other Bidder for the Works.
- (l) As security for due performance of the under takings and obligations of our Bid, we submit here with a Bid security, in the amount specified in **Bidding Data**, which is valid (at least) 28 days beyond validity of Bid itself.
- (m) We undertake that all the information and documents submitted with the Bid are genuine, and in case of incorrect information of fake documents we shall be liable for punitive action under the Applicable Law.
- (n) We are not participating, as a Bidder or as a subcontractor, in more than one Bid in this Bidding process, other than alternative offers submitted in accordance with IB17 (as applicable).



LTB-2

- (o) We agree to permit Employer or its representative to inspect our accounts and records and other documents relating to the Bid submission and to have them audited by auditors. This permission is extended for verification of any information provided in our Technical Bid which comprises all documents enclosed herewith in accordance with IB.12.1 (A)(1) of the **Bidding Data**.

Name

In the capacity of

Signed

Duly authorized to sign the Bid for and on behalf of

Date

Address.....





Letter of Price Bid

Date:

Bid Reference No:

(Name of Contract/Works)

To:

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents as per 12.1(A)(2) provided in Bidding Data, including Addenda issued in accordance with Instructions to Bidders (IB) 9 for the execution of Works;
- (b) The total price of our Bid, excluding any discounts offered in item (c) below is:
- (c) The discounts offered and the methodology for their application are:
- (d) Our Bid shall be valid for a period of days from the date fixed for the bid submission deadline in accordance with the **Bidding Data**, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (e) If our Bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents as specified in **Bidding Data**;
- (f) We understand that this Bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed and we do hereby declare that the Bid is made without any collusion, comparison of figures or arrangement with any other bidder for the Works.
- (g) We understand that you are not bound to accept the lowest evaluated Bid or any other Bid that you may receive.
- (h) We agree to permit Employer or its representative to inspect our accounts and records and other documents relating to the Bid submission and to have them audited by auditors. This permission is extended for verification of any information provided in our Technical Bid which comprises all documents enclosed herewith in accordance with IB.12.1 (A)(1) of the **Bidding Data**.



(i) If awarded the contract, the person named below shall act as Contractor's Representative.

Name

In the capacity of

Signed

Duly authorized to sign the Bid for and on behalf of

Date

Address.....





SCHEDULE OF ADJUSTMENT DATA

Schedule of Indexation

The source of indices and the weightages or coefficients for use in the adjustment formula under Schedule shall be as follows:

$$P_n = \{a + b*(L_n/L_o) + c*(C_n/C_o) + d*(D_n/D_o) + e*(E_n/E_o) + f*(F_n/F_o) + g*(G_n/G_o) - 1\}$$

where:

“P_n” is the adjustment multiplier to be applied to the estimated Contract value in the relevant currency of the work carried out in period “n”, this period being a month;

“a” is a constant, representing the non-adjustable portion in contractual payments;

“b”, “c”, “d”, “e”, “f” & “g” are coefficients representing the estimated proportion of each cost element related to the execution of the Works as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labour, aggregate, cement, steel and High-Speed Diesel;

L_n, C_n, D_n, E_n, F_n & G_n are the current cost indices or reference prices for period “n”, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the date 28 days prior to the last day of the period (to which the particular Payment Certificate relates); and

L_o, C_o, D_o, E_o, F_o & G_o are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date.

The weightings (coefficients) for each of the factors of cost stated in the following table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variation(s).

If the Contractor fails to complete the Works within the Time for Completion prescribed under Clause 8.2, adjustment of prices thereafter until the date of completion of the Works shall be made using either the indices or prices relating to the prescribed time for completion, or the current indices or prices, whichever is more favorable to the Employer, provided that if an extension of time is granted pursuant to Clause 8.5, the above provision shall apply only to adjustments made after the expiry of such extension of time.

The weightages for each of the factors of cost given in Schedule of Adjustment Data (Schedule – A to Bid) shall be adjusted if, in the opinion of the Engineer, they have been rendered unreasonable, unbalanced, or inapplicable as a result of varied or additional work executed or instructed under Clause 12.3. Such adjustment(s) shall have to be agreed in the variation order.

**SCHEDULE OF ADJUSTMENT DATA****Table I. Local Currency (LC) For Bill Nos. _____**

Cost Element	Description	Coefficients	Weightages (%)	Applicable index
1	2	3	4	5
(i)	Fixed Portion	a	25	
(ii)	Labor (Unskilled)	b	7	Market Rates of “Materials, labours and machinery” for price variation notified monthly by Finance Department, Government of Punjab for city of Lahore.
(iii)	Aggregate			Market Rates of “Materials, labours and machinery” for price variation notified monthly by Finance Department, Government of Punjab for city of Lahore.
	Aggregate / Stone Crushed (Bajri)	c	8	
(iv)	Cement	d	12	Market Rates of “Materials, labours and machinery” for price variation notified monthly by Finance Department, Government of Punjab for city of Lahore
(v)	Steel (Grade- 60)	e	26	Market Rates of “Materials, labours and machinery” for price variation notified monthly by Finance Department, Government of Punjab for city of Lahore
(vi)	High Tensile Steel Wire, Pre-Stressing Cables	f	7	Market Rates of “Materials, labours and machinery” for price variation notified monthly by Finance Department, Government of Punjab for city of Lahore
(vii)	High Speed Diesel (HSD)	g	15	The source of prices of HSD shall be either Statistical Bulletin notified monthly by Finance Department, Government of Punjab or Pakistan State Oil (PSO) or Oil and Gas Regulatory Authority (OGRA).
	Total		100	

Notes:

- Indices for “(ii)” to “(vi)” shall be taken from “Finance Department published by Government of Punjab” for the city of Lahore.
The base date price (or base date index) of any element shall be the price of the element for the month on the day falling 28 days prior to the latest day for submission of bids.
The current date price (or current date index) of any element shall be the price of the element for the month falling on the 28 days prior to the last day of the period to which the particular Payment Certificate relates.



A-3
Schedule-A to Bid

SCHEDULE OF ADJUSTMENT DATA

Table II. Foreign Currency (FC) For Bill Nos. _____

Not Applicable





A-4
Schedule-A to Bid

SCHEDULE OF ADJUSTMENT DATA

Table III. Foreign Currency Requirements

Not Applicable





SCHEDULE OF ADJUSTMENT DATA

Table IV. Summary of Payment Currencies

Not Applicable





B-1

Schedule – B to Bid

BILL OF QUANTITIES

Please Refer to Volume – II





**C-1
Schedule-C to Bid**

CONSTRUCTION SCHEDULE

Pursuant to Sub-Clause 8.3 of the General Conditions, the whole of the Works, and each Section (if any), shall be completed within the Time for Completion for the Works or Section (as the case may be) stated as hereunder and mentioned in Contract Data. The Bidder shall provide as Schedule -C to Bid, the Construction Schedule in the bar chart (*CPM or PERT*) showing the sequence of work items and the period of time during which he proposes to complete each work item in such a manner that his proposed programme for completion of the whole of the Works and Sections of the Works may meet Employer’s completion targets in days noted below and counted from the date of receipt of Engineer’s Notice to Commence. (Attach sheets as required for the specified form of Construction Schedule):

Description	Time for Completion (days)
a) Whole Works	
b) Section A	
c) Section B	
d) _____	
e) _____	



METHOD OF PERFORMING THE WORK

The Bidder is required to submit a narrative outlining the method of performing the Work. The narrative should indicate in detail and include but not be limited to:

1. **Organization Chart:**
Shall indicate head office and field office personnel involved in management and supervision, engineering, equipment maintenance and purchasing.
2. **Mobilization:**
In Pakistan, the type of facilities including personnel accommodation, office accommodation, provision for maintenance and for storage, communications, security and other services to be used.
3. **Method of executing the Works:**
The procedures for installation of equipment and machinery and transportation of equipment and materials to the site.





**E-1
Schedule-E to Bid**

LIST OF MAJOR EQUIPMENT

The Bidder will provide on Sheet E-2 of this Schedule a list of all major equipment and related items, under separate heading for items owned, to be purchased or to be arranged on lease by him to carry out the Works. The information shall include make, type, capacity, and anticipated period of utilization for all equipment.

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Sheet E-3.





**E-2
Schedule-E to Bid**

LIST OF MAJOR EQUIPMENT

Owned, Purchased or Leased

Owned Purchased or Leased	Description of Unit (Make, Model, Year)	Capacity HP Rating	Condition	Present Location or Source	Date of Delivery at Site	Period of Work on Project
1	2	3	4	5	6	7
a. Owned						
b. To be Purchased						
c. To be arranged on Lease						



LIST OF MAJOR EQUIPMENT

Equipment details

Item of equipment	
Equipment information	Name of manufacturer Model and power rating
	Capacity Year of manufacture
Current status	Current location
	Details of current commitments
Source	Indicate source of the equipment <div style="display: flex; justify-content: space-around; width: 100%;"> Owned Rented Leased Specially manufactured </div>
The following information shall not be applicable for equipment owned by the Bidder	
Owner	Name of owner
	Address of owner
	Telephone Contact name and title
	Fax Telex
Agreements	Details of rental / lease / manufacture agreements specific to the project



ORGANIZATION CHART
FOR THE
SUPERVISORY STAFF AND LABOUR





**G-1
Schedule-G to Bid**

LIST OF SUBCONTRACTORS

I/ We intend to subcontract the following parts of the Work to subcontractors. In my/ our opinion, the subcontractors named hereunder are reliable and competent to perform that part of the work for which each is listed.

Enclosed are documentation outlining experience of subcontractors, the curriculum vitae and experience of their key personnel who will be assigned to the Contract, equipment to be supplied by them, size, location and type of contracts carried out in the past.

Part of Works (Give Details)	Subcontractor (With Complete Address)
1	2



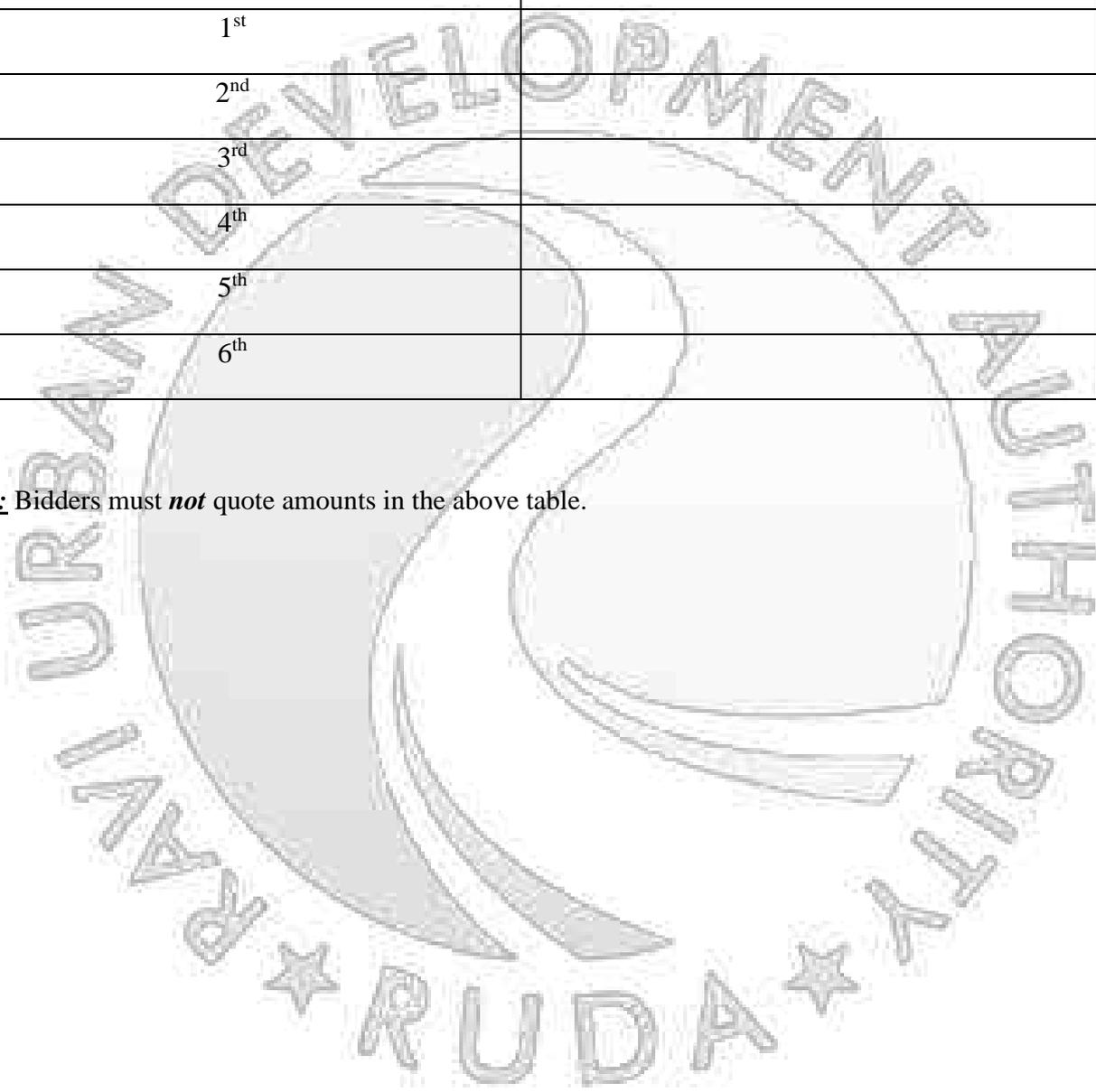
**H-1
Schedule-H to Bid**

ESTIMATED PROGRESS PAYMENTS

Bidder's estimate of the value of work which would be executed by him during each of the periods stated below, based on his Programme of the Works and the Rates in the Bill of Quantities, expressed in % thousands of PKR. Bidders are instructed to provide percentage (%) of bid price in each quarter.

Quarter	Percentage (%) of Contract Amount
1 st	
2 nd	
3 rd	
4 th	
5 th	
6 th	

Note: Bidders must *not* quote amounts in the above table.





CONSTRUCTION CAMP AND HOUSING FACILITIES

The Bidder in accordance with Clause 6 of the Conditions of Contract shall provide description of his construction camp's facilities and staff housing requirements.

The Contractor shall be responsible for pumps, electrical power, water and electrical distribution systems, and sewerage system including all fittings, pipes and other items necessary for servicing the Contractor's construction camp.

The Bidder shall list or explain his plans for providing these facilities for the service of the Contract as follows:

1. Site Preparation (clearing, land preparation, etc.).
2. Provision of Services.
 - a) Electrical power (expected power load, etc.).
 - b) Water (required amount and system proposed).
 - c) Sanitation (sewage disposal system, etc.)
3. Construction of Facilities
 - a) Contractor's Office. Workshop and Work Areas (areas required and proposed layout, type of construction of buildings, etc.).
 - b) Warehouses and Storage Areas (area required, type of construction and layout).
 - c) Housing and Staff Facilities (Plans for housing for proposed staff, layout, type of construction, etc.).
4. Construction Equipment Assembly and Preparation (detailed plans for carrying out this activity).
5. Other Items Proposed (Security services, etc.)

Note:

The Contractor shall be responsible for pumps, electrical power, water and electrical distribution systems, and sewerage system including all fittings, pipes and other items necessary for servicing the Contractor's construction camp.



**(INTEGRITY PACT)
DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC.
PAYABLE BY THE SUPPLIERS OF GOODS, SERVICES & WORKS IN
CONTRACTS WORTH RS. 10.00 MILLION OR MORE**

Contract No. _____ Dated _____
Contract Value: _____
Contract Title: _____

..... [Name of Supplier] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan (GoP) or any administrative subdivision or agency thereof or any other entity owned or controlled by GoP through any corrupt business practice.

Without limiting the generality of the foregoing, [name of Supplier] represents and warrants that it has fully declared the brokerage, commission, fees etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder’s fee or kickback, whether described as consultation fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP, except that which has been expressly declared pursuant hereto.

[name of Supplier] certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GoP and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty.

[name of Supplier] accepts full responsibility and strict liability for making any false declaration, not making full disclosure, misrepresenting facts or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right, interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other rights and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

Notwithstanding any rights and remedies exercised by GoP in this regard, [name of Supplier] agrees to indemnify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten times the sum of any commission, gratification, bribe, finder’s fee or kickback given by [name of Supplier] as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP.

Name of Buyer:
Signature:
[Seal]

Name of Seller/Supplier:
Signature:
[Seal]



Schedule – K to Bid

FINANCIAL COMPETENCE AND ACCESS TO FINANCIAL RESOURCES

1. SOUNDNESS AND ACCESS TO FINANCIAL RESOURCES

Sr. #	DESCRIPTION	MAX MARKS	REMARKS
i)	<p>Available General Bank Credit Line Limit</p> <p>a) 9 Marks if the available bank credit line limit is equal to Rs. 2500 million.</p> <p>b) No marks for less than Rs. 2500 million.</p> <p>c) For the limit of more than Rs. 2500 million but less than Rs. 3000 million use following weight age $9 + (A/3000) \times 6$.</p> <p>A= Available Bank Credit Line Limit in Million Rs.</p> <p>d) Full Marks are given in case of credit line limit is Rs. 3000 million or more.</p>	15	<p>No marks if general bank credit line certificate in form of valid credit Facility Offer Letter of scheduled bank is not attached.</p> <p><i>Note: Certificate must not be more than 6 months old.</i></p>
ii)	<p>Average Working Capital</p> <p>a) 6 Marks if the average working capital is equal to Rs. 2500 million.</p> <p>b) No marks for less than Rs.2500 million.</p> <p>c) For the limit of more than Rs.2500 million but less than Rs.3000 million use following weight age $6 + (A/3000) \times 4$.</p> <p>A= Average working capital in last three years in Million Rs.</p> <p>d) Full Marks are given in case of Average working capital is Rs.3000 million or more</p>	10	<p>No marks if Annual Audit Report of last three years duly certified from Chartered Accountant Firm is not attached.</p>
iii)	<p>Bid Capacity</p> <p>[5 x working capital + Project/General specific lines of credit – 40% of current contract commitments] > Bid Price.</p>	5	<p>NOTE: Cost of balance works in hand should be attached, if cost of balance works is not given then total cost of the given works in hand will be considered for evaluating bid capacity. Zero marks for negative bid capacity.</p>
	Total Marks of Financial Position	30	



2. **AVERAGE ANNUAL TURNOVER**

Bidders to list their certified annual turnover (audited statements for last three years). **The Audited Statements must not be older than last 3 years.**

Note:

- *For qualification of the Bidder (Single Entity/JV/Consortium), Minimum 65% marks are necessary in each category and Minimum 70% overall marks are necessary for qualification requirement as per criteria given in Schedules – K & L to Bid.*
- *In case of JV/Consortium, the lead member must secure at least 50% marks in each category. If Lead partner fails to achieve the minimum 50% passing marks in any category of Schedule K & L will not be evaluated further and will be considered as technically failed overall.*





L – 1
Schedule – L to Bid

**PAST PERFORMANCE, CURRENT COMMITMENT, EQUIPMENT & PERSONNEL
QUALIFICATION AND EXPERIENCE**

1. PAST PERFORMANCE AND CURRENT COMMITMENTS

Sr. #	DESCRIPTION	MAX MARKS	REMARKS
i)	<p>Projects of Similar Nature and Complexity completed over last 10 years.</p> <p>i. Bridge structures over active creeks/ rivers involving hydraulic / hydro-technical construction works (Rs. 2000 Million)</p> <p>ii. Electrical Works (Rs. 10 Million)</p> <p><i>Note: 65% marks for 1 project in each category i.e., (i) and (ii). Full marks for 2 or more projects in each category i.e., (i) and (ii)</i></p>	20	<p>No marks if Completion Certificate / Performance Certificate / Taking Over Certificate issued by the Client is not attached.</p> <p>Each project proposed by the bidder can cover all categories as mentioned (i) to (ii).</p> <p>In case a single project does not cover all the relevant categories i.e. (i) to (ii), proportionate marks will be awarded accordingly.</p> <p>(Attach list of similar nature and complexity of projects along with certificates issued by the employer with project worth).</p> <p>Note: Cost of relevant categories should be clearly mentioned and highlighted in the summary page of priced BOQ issued by the Client.</p>
ii)	<p>Projects of Similar Nature and Complexity currently in hand.</p> <p>i. Bridge structures over active creeks/ rivers involving hydraulic / hydro-technical construction works (Rs. 2500 Million)</p> <p>ii. Electrical Works (Rs. 12 Million)</p> <p><i>Note: 65% marks for at least 1 project in each category i.e., (i) and (ii). Full marks for 2 or more projects in each category i.e., (i) and (ii).</i></p>	15	<p>No marks if Letter of Acceptance issued by the Client is not attached.</p> <p>Each project proposed by the bidder can cover all categories as mentioned (i) to (ii).</p> <p>In case a single project does not cover all the relevant categories i.e. (i) to (ii), proportionate marks will be awarded accordingly.</p> <p>(Attach list of similar nature and complexity of projects along with certificates issued by the employer with project worth).</p> <p>Note: Cost of relevant categories should be clearly mentioned and highlighted in the summary page of priced BOQ issued by the Client.</p>
	Total Marks of Working Experience	35	



Note:

- *For qualification of the Bidder (Single Entity/JV/Consortium), Minimum 65% marks are necessary in each category and Minimum 70% overall marks are necessary for qualification requirement as per criteria given in Schedules – K & L to Bid.*
- *In case of JV/Consortium, the lead member must secure at least 50% marks in each category. If Lead partner fails to achieve the minimum 50% passing marks in any category of Schedules – K & L to Bid, the JV / Consortium will not be evaluated further and will be considered as technically non-responsive overall.*



**2. EQUIPMENT**

Sr. #	DESCRIPTION	MAX MARKS	REMARKS
1.	Concrete Mixer 7 CuM / Hr capacity (04 Nos.)	2	<p>No marks if the manufacturing certificate / Purchase certificate / Leased / Rented / ownership proof is not attached.</p> <p>Proportionate marking if equipment is less than the minimum required number.</p> <p>Capacity of the equipment / Plant should be clearly mentioned.</p> <p><i>Note: No marks will be awarded if found any ambiguity or attached documents are not readable.</i></p>
2.	Mechanical/ Hydraulic Crane at least 20 Ton (01 No.)	1	
3.	Asphalt Paver machine (2 Nos)	1.5	
4.	Sheep Foot Roller (2 Nos)	1	
5.	Tandem Roller (2 Nos)	1	
6.	Motor Grader (2 Nos.)	1	
7.	Loader (2 Nos.)	1	
8.	Concrete Pump (1 No.)	0.5	
9.	Total Station for Surveying / Auto level (03 Nos.)	1	
10.	Diesel Generator 15 – 20 kVA (2 Nos.)	1	
11.	Excavator (02 Nos.)	2	
12.	Tractor Trolley (02 Nos.)	1	
13.	Welding Machines (02 Nos.)	1	
	Sub-Total of Tools & Plants	15	

Note:

- For qualification of the Bidder (Single Entity/JV/Consortium), Minimum 65% marks are necessary in each category and Minimum 70% overall marks are necessary for qualification requirement as per criteria given in Schedules – K & L to Bid.
- In case of JV/Consortium, the lead member must secure at least 50% marks in each category. If Lead partner fails to achieve the minimum 50% passing marks in any category of Schedule K & L will not be evaluated further and will be considered as technically failed overall.



L – 3

Schedule – L to Bid

3. PERSONNEL QUALIFICATION AND EXPERIENCE

Sr. #	DESCRIPTION	MAX MARKS	REMARKS
i)	Graduate Engineers		
a	01 No. of Professional Civil Engineer registered with PEC, having at least 10 years of overall experience.	5	Add CV / PEC verification / proof of employment with firm. No marks if required documents are not attached.
b	02 Nos. of Registered Civil Engineer with at least 5 years of experience. (2 marks for each)	4	Add CV / attached PEC verification / proof of employment with firm. No marks if required documents are not attached.
c	02 Nos. of Registered Electrical Engineer with at least 5 years of experience. (1 mark each)	2	Add CV / attached PEC verification / proof of employment with firm. No marks if required documents are not attached.
ii)	DAE Associate Engineers		
a	Associate Engineers (DAE) with at least 8 years of experience: <ul style="list-style-type: none"> • 06 Nos. Civil (0.33 mark for each) • 02 Nos. Electrical (1 mark for each) 	4	Add CV / proof of employment with firm. No marks if required documents are not attached.
b	05 Nos. of Surveyors (At least 1 Year diploma/certificate) with at least 5 years of experience (1 mark for each)	5	Add CV / proof of employment with firm. No marks if required documents are not attached.
	Sub-Total of Personnel Capabilities	20	

Note: No marks if required documents are not attached.

- For qualification of the Bidder (Single Entity/JV/Consortium), Minimum 65% marks are necessary in each category and Minimum 70% overall marks are necessary for qualification requirement as per criteria given in Schedules – K & L to Bid.
- In case of JV/Consortium, the lead member must secure at least 50% marks in each category. If Lead partner fails to achieve the minimum 50% passing marks in any category of Schedule K & L will not be evaluated further and will be considered as technically failed overall.



STANDARD FORMS

BID SECURITY

PERFORMANCE SECURITY

LETTER OF ACCEPTANCE

CONTRACT AGREEMENT

DAAB AGREEMENT

FORM OF ADVANCE PAYMENT GUARANTEE

INDEMNITY BOND FOR SECURED ADVANCE

AGAINST MATERIAL BROUGHT AT SITE



FORM OF BID SECURITY

Security Executed on
(Date)

Expiry on
(Date)

Name of Surety with Address:

Name of Principal (Bidder) with Address

Penal Sum of Security PKR.....(Pak Rupees)
.....) Bid

Reference No.

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the Bid and at the request of the said Principal (Bidder) we, the Surety above named, are held and firmly bound unto..... (hereinafter called the 'Employer') in the sum stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Bidder has submitted the accompanying Bid dated..... for
.....*Particulars of Bid*) to the said Employer; and

- (1) WHEREAS, the Employer has required as a condition for considering said Bid that the Bidder furnishes a Bid Security in the above said sum to the Employer, conditioned as under: that the Bid Security shall remain in force for a period twenty-eight (28) days beyond the Bid Validity date i.e., upto_____.
- (2) that the Bid Securities of the Bidders except the lowest three will be returned by the Employer within twenty eight (28) days from the opening of Bids, provided a Bidder request for the return of its Bid Security, or on the expiry of original validity of Bid Security or as extended, whichever is earlier;
- (3) that the Bid Security of the lowest three Bidders comprising the successful Bidder will be returned when the successful Bidder has furnished the required Performance Security; and
- (4) that in the event of failure of the successful Bidder to furnish the required Performance Security, the entire said sum be paid immediately to the said Employer pursuant to IB.16 and IB.35 of the Instructions to Bidders for the successful Bidder's failure to perform.

NOW THEREFORE, if the successful Bidder shall, within the period specified therefor, on the prescribed form presented to him for signature enter into a formal Contract with the said Employer in accordance with his Bid as accepted and furnish within twenty eight (28) days of his being requested to do so, a Performance Security with good and sufficient surety, as may be required, upon the form prescribed by the said Employer for the faithful performance and proper fulfilment of the said Contract or in the event of non-withdrawal of the said Bid within the time specified for its validity then this obligation shall be void and of no effect, but otherwise to remain in full force and effect.

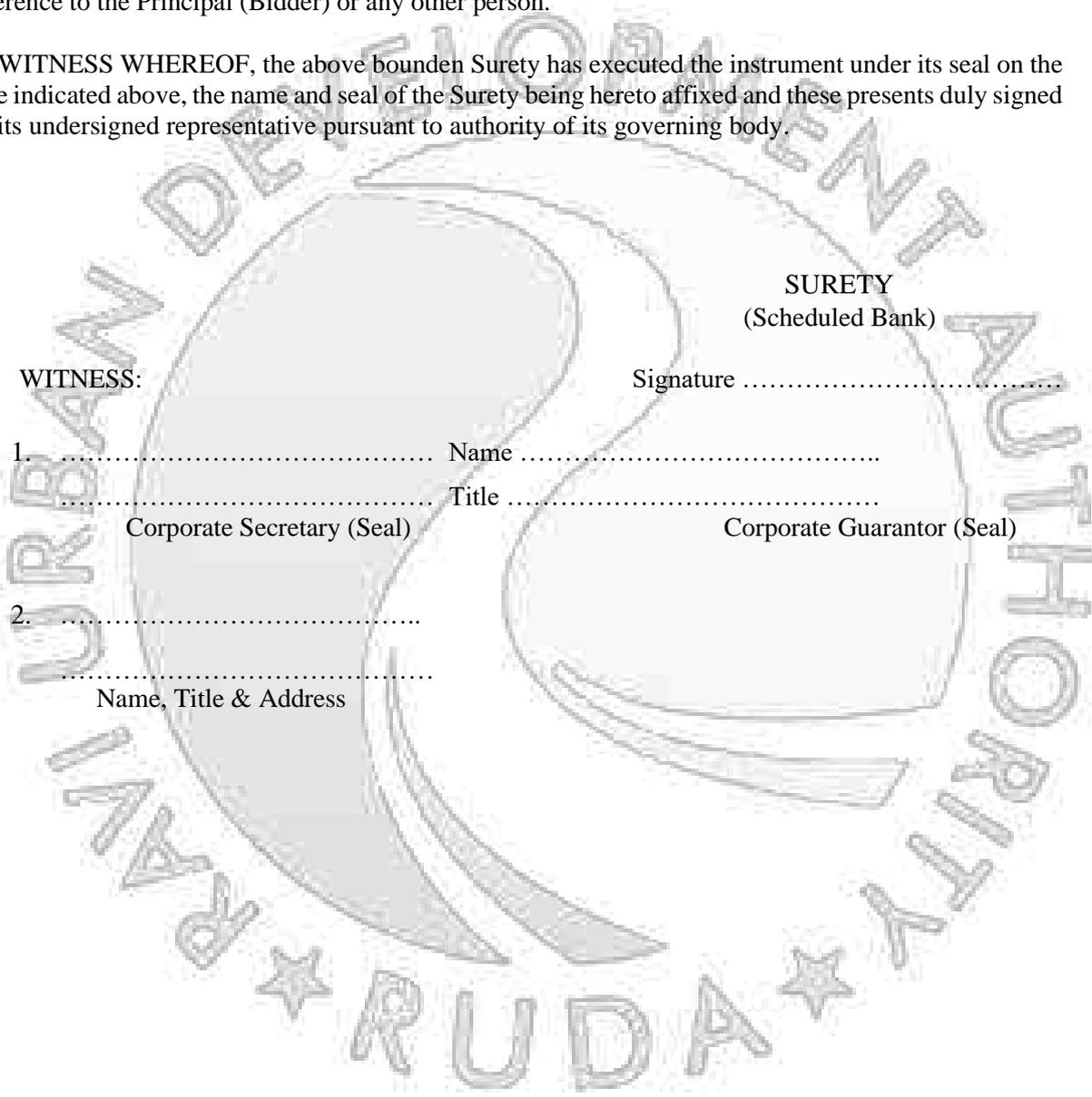


BS-2

PROVIDED THAT the Surety shall forthwith pay the Employer the said sum upon first written demand of the Employer (without cavil or argument) and without requiring the Employer to prove or to show grounds or reasons for such demand, notice of which shall be sent by the Employer by registered post duly addressed to the Surety at its address given above.

PROVIDED ALSO THAT the Employer shall decide, whether the Principal (Bidder) has duly performed his obligations to sign the Contract Agreement and to furnish the requisite Performance Security within the time stated above, or has defaulted in fulfilling said requirements and the Surety shall pay without objection the said sum upon demand from the Employer forthwith and without any reference to the Principal (Bidder) or any other person.

IN WITNESS WHEREOF, the above bounden Surety has executed the instrument under its seal on the date indicated above, the name and seal of the Surety being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.



SURETY
(Scheduled Bank)

Signature

WITNESS:

1. Name

..... Title

Corporate Secretary (Seal)

Corporate Guarantor (Seal)

2.

.....
Name, Title & Address



FORM OF PERFORMANCE SECURITY

Guarantee No.....

Executed on

Expiry date

[Letter by the Guarantor to the Employer]

Name of Guarantor with address:

Name of Principal (Contractor) with address:.....

Penal Sum of Security (express in words and figures)

Letter of Acceptance No.....Dated

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the Bidding Documents and above said Letter of Acceptance (hereinafter called the Documents) and at the request of the said Principal we, the Guarantor above named, are held and firmly bound unto the (hereinafter called the Employer) in the penal sum of the amount stated above for the payment of which sum well and truly to be made to the said Employer, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has accepted the Employer's above said Letter of Acceptance for.....

..... (Name of Contract) for the (Name of Project).

NOW THEREFORE, if the Principal (Contractor) shall well and truly perform and fulfil all the undertakings, covenants, terms and conditions of the said Documents during the original terms of the said Documents and any extensions thereof that may be granted by the Employer, with or without notice to the Guarantor, which notice is, hereby, waived and shall also well and truly perform and fulfil all the undertakings, covenants terms and conditions of the Contract and of any and all modifications of said Documents that may hereafter be made, notice of which modifications to the Guarantor being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue till the date certified in Taking-Over Certificate issued in accordance with Clause – 10, Employer’s Taking Over of Condition of Contract and half of it i.e. (five) 05% of Contract Price, shall remain valid till the time all requirements of Clause11, Defects After Taking Over, of Conditions of Contract are fulfilled.

Our total liability under this Guarantee is limited to the sum stated above and it is a condition of any liability attaching to us under this Guarantee that the claim for payment in writing shall be received by us within the validity period of this Guarantee, failing which we shall be discharged of our liability, if any, under this Guarantee.

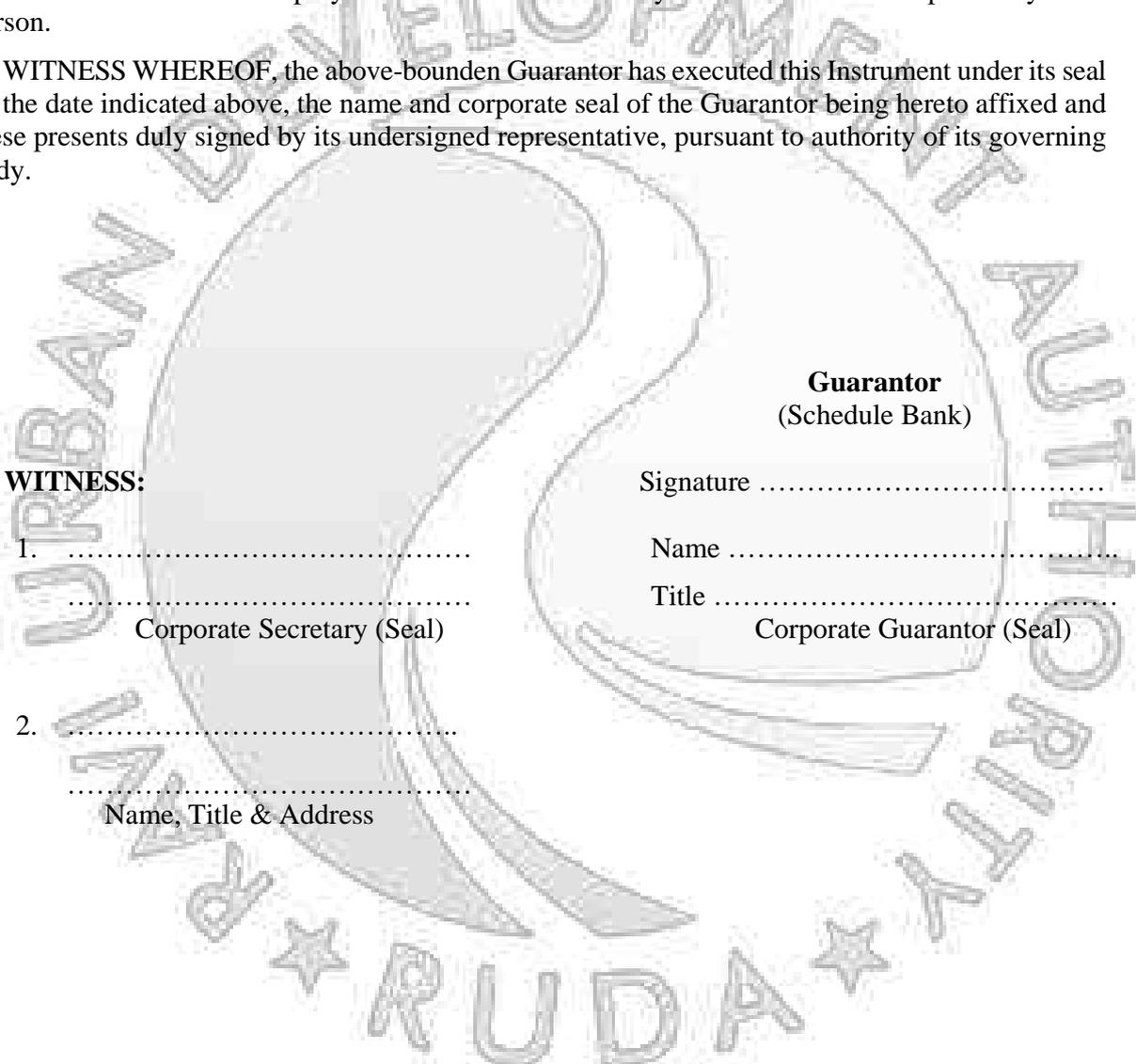


PS-2

We,..... (the Guarantor), waiving all objections and defense under the Contract, do hereby irrevocably and independently guarantee to pay to the Employer without delay upon the Employer's first written demand without cavil or arguments and without requiring the Employer to prove or to show grounds or reasons for such demand any sum or sums up to the amount stated above, against the Employer's written declaration that the Principal has refused or failed to perform the obligations under the Contract which payment will be effected by the Guarantor to Employer's designated Bank & Account Number.

PROVIDED ALSO THAT the Employer shall decide, whether the Principal (Contractor) has duly performed his obligations under the Contract or has defaulted in fulfilling said obligations and the Guarantor shall pay without objection any sum or sums up to the amount stated above upon first written demand from the Employer forthwith and without any reference to the Principal or any other person.

IN WITNESS WHEREOF, the above-bounden Guarantor has executed this Instrument under its seal on the date indicated above, the name and corporate seal of the Guarantor being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.



Guarantor
(Schedule Bank)

Signature

Name

Title

Corporate Guarantor (Seal)

WITNESS:

1.
.....
Corporate Secretary (Seal)

2.
.....
Name, Title & Address



Letter of Acceptance

[Letterhead paper of the Employer]

NAME OF CONTRACT:.....

CONTRACT NUMBER:.....

TO :

Date:

Your Reference:

Our Reference:

We thank you for your Bid datedfor the execution and completion of the Works comprising the above-named Contract and remedying of defects therein,all in conformity with the terms and conditions contained in the Contract.

We have pleasure in accepting your Bid for the Accepted Contract Amount of:

.....
[currency and amount in figures]

.....
[currency and amount in words]

In consideration of you properly and truly performing the Contract, we agree to pay you the Accepted Contract Amount or such other sums to which you may become entitled under the terms of the Contract, at such times and as prescribed by the Contract.

We acknowledge that this Letter of Acceptance creates a binding Contract between us, and we undertake to fulfil all our obligations and duties in accordance with the terms of this Contract.

Signature:.....

Signed by:

For and on behalf of:.....

Date:.....



FORM OF CONTRACT AGREEMENT

THIS CONTRACT AGREEMENT (hereinafter called the “Agreement”) made on the _____ day of _____ (month) 20____ between _____ (hereinafter called the “Employer”) of the one part and _____ (hereinafter called the “Contractor”) of the other part.

WHEREAS the Employer is desirous that certain Works, viz., _____ should be executed by the Contractor and has accepted a Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

NOW this Agreement witnessed as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents, in the order of priority, after incorporating addenda, if any, except those parts relating to Instructions to Bidders shall be deemed to form and be read and construed as part of this Agreement:
 - a) the Contract Agreement;
 - b) the Letter of Acceptance;
 - c) the Letter of Technical Bid & Letter of Price Bid;
 - d) the Particular Conditions Part A - Contract Data;
 - e) the Particular Conditions Part B - Special Provisions;
 - f) the General Conditions of Contract;
 - g) the Bill of Quantities - (Schedule B to Bid);
 - h) the Schedule of Adjustment Data – (Schedule A to Bid);
 - i) Completed Schedule of Bids (C to J);
 - j) the Specification Part A - Specific Provisions;
 - k) the Specification Part B - Technical Provisions;
 - l) the Drawings;
 - m) the JV / Consortium Undertaking (if the Contractor is a JV / Consortium);
 - n) EMP;
 - o) or any other documents.

The addenda/corrigenda, if any, (Excluding part relating to Instructions to Bidders along with **Bidding Data**) shall be deemed to have been incorporated at the appropriate places in the “Documents forming the Contract”.

3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy defects therein in conformity and in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor, in consideration of the execution and completion of the Works as per provisions of the Contract, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.



IN WITNESS WHEREOF the parties hereto have caused this Agreement to be executed on the day, month and year first before written in accordance with their respective laws.

Signature of Contactor

Signature of Employer

(Seal)

(Seal)

Signed, Sealed and Delivered in the presence of:

Witness

Witness

(Name, Title and Address)

(Name, Title and Address)





DAAB-1

DAAB AGREEMENT

Name and details of the Contract _____

This Agreement made the _____ day of _____ [month], _____ [year], between

Name and contact details of the Employer _____ (name)
_____ (address)
_____ (telephone)
_____ (email / other contact details);

Name and contact details of the Contractor _____ (name)
_____ (address)
_____ (telephone)
_____ (email / other contact details);

Name and contact details of the DAAB Member _____ (name)
_____ (address)
_____ (telephone)
_____ (email / other contact details);

(“DAAB Agreement”)

Whereas:

- A. the Employer and the Contractor have entered (or intend to enter) into the Contract;
- B. under the Contract, the “**DAAB**” or “**Dispute Avoidance/Adjudication Board**” means the sole member or three members (as stated in the Contract Data of the Contract) so named in the Contract, or appointed under Sub-Clause 21.1 [*Constitution of the DAAB*] or Sub-Clause 21.2 [*Failure to Appoint DAAB Members*] of the Conditions of Contract;
- C. the Employer and the Contractor desire jointly to appoint the above-named DAAB Member to act on the DAAB as:
 - a. the sole member of the DAAB, and where this is the case, all references to the “Other Members” do not apply; or
 - b. one of three members / chairman [*delete the one which is not applicable*] of the DAAB and, where this is the case, the other two persons are:



DAAB-2

_____ (name)	_____ (name)
_____ (address)	_____ (address)
_____ (telephone)	_____ (telephone)
_____ (email/ other contact details)	_____ (email/ other contact details)

the “Other Members”; and

D. the DAAB Member accepts this appointment.

1. The Employer, Contractor and DAAB Member jointly agree as follows:

1. The conditions of this DAAB Agreement comprise:
 - (a) Clause 21 [*Disputes and Arbitration*] of the Conditions of Contract, and any other provisions of the Contract that are applicable to the DAAB’s Activities; and
 - (b) the “General Conditions of Dispute Avoidance/Adjudication Agreement”, which is appended to the General Conditions of the “Conditions of Contract for Construction” Second Edition 2017 published by FIDIC (“GCs”), as amended and/or added to by the following provisions.
2. [Details of amendments to the GCs, if any. For example:
In the procedural rules annexed to the GCs, Rule _ is deleted and replaced by: “ ... “]
3. The DAAB Member shall be paid in accordance with Clause 9 of the GCs. The currency of payment shall be _____.
In respect of Sub-Clauses 9.1 and 9.2 of the GCs, the amounts of the DAAB Member’s monthly fee and daily fee shall be:
monthly fee _____ per month, and
daily fee of _____ per day
(or as otherwise set under Sub-Clause 9.3 of the GCs).
4. In consideration of the above fees, and other payments to be made to the DAAB Member in accordance with the GCs, the DAAB Member undertakes to act as DAAB Member in accordance with the terms of this DAAB Agreement.
5. The Employer and the Contractor shall be jointly and severally liable for the DAAB Member’s fees and other payments to be made to the DAAB Member in accordance with the GCs.
6. This DAAB Agreement shall be governed by the law of _____ (if not stated, the law that governs the Contract under Sub-Clause 1.4 of the Conditions of Contract).



DAAB-3

SIGNED by: _____ SIGNED by: _____ SIGNED by: _____

Print name: _____ Print name: _____ DAAB Member

Title: _____ Title: _____ Title: _____

for and on behalf of the Employer

for and on behalf of the Contractor

in the presence of

in the presence of

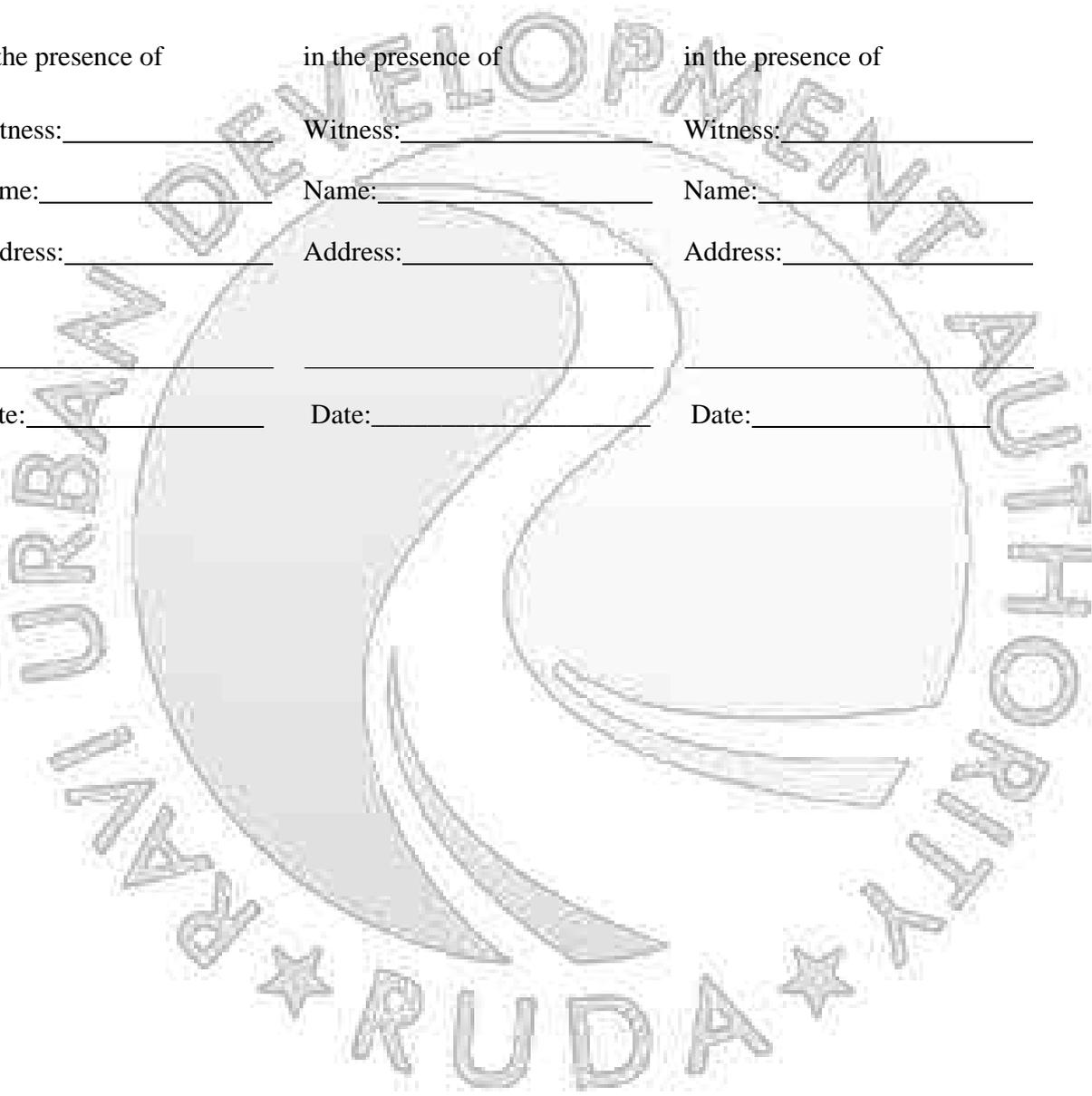
in the presence of

Witness: _____ Witness: _____ Witness: _____

Name: _____ Name: _____ Name: _____

Address: _____ Address: _____ Address: _____

Date: _____ Date: _____ Date: _____





MG-1

FORM OF MOBILIZATION ADVANCE GUARANTEE/ BOND

Guarantee No. _____ Date _____

WHEREAS _____ (hereinafter called the 'Employer')

has entered into a Contract for _____

(Particulars of Contract)

with _____ (hereinafter called the "Contractor").

AND WHEREAS, the Employer has agreed to advance to the Contractor, at the Contractor's request, an amount of Pak Rupees.....(PKR.....) which amount shall be advanced to the Contractor as per provisions of the Contract.

AND WHEREAS, the Employer has asked the Contractor to furnish Guarantee to secure the mobilization advance for the performance of his obligations under the said Contract.

AND WHEREAS,

(hereinafter called the "Guarantor") at the request of the Contractor and in consideration of the Employer agreeing to make the above advance to the Contractor, has agreed to furnish the said Guarantee.

NOW, THEREFORE, the Guarantor hereby guarantees that the Contractor shall use the advance for the purpose of above mentioned Contract and if he fails and commits default in fulfilment of any of his obligations for which the advance payment is made, the Guarantor shall be liable to the Employer for payment not exceeding the aforementioned amount.

Notice in writing of any default, on the part of the Contractor, of which the Employer at his discretion of making decision, shall be given by the Employer to the Guarantor, and on such first written demand, payment shall be made by the Guarantor of all sums then due under this Guarantee without any reference to the Contractor and without any objection.

This Guarantee shall remain in force until the advance is fully adjusted against payments from the Interim Payment Certificates of the Contractor or until.....whichever is earlier. *(Date)*

The Guarantor's liability under this Guarantee shall not in any case exceed the sum of PKR.....(Pak Rupees).This Guarantee shall remain valid up to the aforesaid date and shall be null and void after the aforesaid date or earlier if the advance made to the Contractor is fully adjusted against payments from Interim Payment Certificates of the Contractor provided that the Guarantor



MG-2

agrees that the aforesaid period of validity shall be deemed to be extended if on the above mentioned date the advance payment is not fully adjusted.

Guarantor
(Scheduled Bank)

WITNESS:

Signature _____

1. _____

Name _____

Corporate Secretary (Seal)

Title _____

Corporate Guarantor (Seal)

2. _____

Name, Title & Address





IB-1

INDEMNITY BOND FOR SECURED ADVANCE AGAINST MATERIAL BROUGHT AT SITE

(ON RS. 300 NONJUDICIAL STAMP PAPER)

This Deed of Indemnity is issued by M/s. _____ in favour of M/s. _____ Whereas _____ has paid the Secured Advance against the cost of material through any Bank or like agency by any other method by virtue of the terms of the contract existing between the parties. The details of the material and their price for which secured advance is being sought for the period _____ till consumption of the material is as under :-

- 1. _____ at Rs. _____ per _____ = Rs.
- 2. _____ at Rs. _____ per _____ = Rs.
- 3. _____ at Rs. _____ per _____ = Rs.
- 4. _____ at Rs. _____ per _____ = Rs.

THEREFORE THIS DEED OF INDEMNITY WITNESSETH AS FOLLOWS:

I/We _____ of M/s. _____ do hereby indemnify M/s _____ for all losses due to thefts, arson, pilferage, loss due to flood and inundation, shortage, deterioration and depreciation etc. through any act of Man or God or slump in the Market of any or all the materials financed or paid by the Employer on our request for financing payment against material. I/We _____ shall indemnify _____ against any or all claims, action damages arising out of or resulting to the said material.

I/We _____ further declare that we will faithfully abide by the above declaration and solemnly affirm that we will not remove, sell, pilferage any of the materials against which M/s _____ has paid us such a secured advance and will not pledge the same with any Bank, Finance Corporation, Firm, Company, Individual or the like agency or create any change whereon in any from what so ever.

I/We _____ do hereby also declare that in the event of my/our infringement of the declaration made above _____ will be entitled to forfeit all such material and also proceed against me/us according to the relevant clause pertaining to breach of contract and further invoke the power of seek any remedies secured of _____ under the contract Agreement signed with us or otherwise available under law.

Place _____

Dated _____

Contractor _____





CONDITIONS OF CONTRACT FOR WORKS OF CIVIL ENGINEERING CONSTRUCTION GENERAL CONDITIONS

FIDIC

2017 Red Book, Reprinted 2022 with amendments

(To be procured by the Contractor)

Copies of the FIDIC Conditions of Contract can be obtained from:

World Trade Center II - Geneva Airport
P. O. Box 311
CH-1215 Geneva 15 Switzerland
Email: fidic@fidic.org, fidic.pub@fidic.org
Website: <https://fidic.org/bookshop>



**PARTICULAR CONDITIONS
PART A – CONTRACT DATA**

**Part A - Contract Data**

Sub- Clause	Data to be Given	Data
1.1.27	Defects Notification Period (DNP):	365 days
1.1.31	Employer's name and address:	<i>Name: Ravi Urban Development Authority (RUDA)</i> <i>Address: Engineering Wing of RUDA, 5-C Muslim Town, Facing Canal, Near Punjab Group of Colleges, Lahore.</i>
1.1.35	Engineer's name and address:	<i>Name: _____</i> <i>Address: _____</i>
1.1.84	Time for Completion:	540 days for whole of the Works from the Commencement Date.
1.3(a)(ii)	agreed methods of electronic transmission:	<i>Email</i>
1.3(d)	address of Employer for communications:	<i>Engineering Wing of RUDA, 5-C Muslim Town, Facing Canal, Near Punjab Group of Colleges, Lahore.</i>
	address of Engineer for communications:	<i>To be notified by the Engineer</i>
	address of Contractor for communications:	<i>[insert Contractor's address at the time of signing of the Contract]</i>
1.4	Contract shall be governed by the law of:	Islamic Republic of Pakistan
	ruling language:	English
	language for communications:	English
1.6	Contract Agreement	Within 14 days from the date of furnishing of acceptable Performance Security and verification thereto.
1.8	number of additional paper copies of Contractor's Documents:	<i>05 Nos.</i>
2.1	after receiving the Letter of Acceptance, the Contractor shall be given right of access	No later than the Commencement Date or as mutually agreed otherwise



Sub-Clause	Data to be Given	Data
	to all or part of the Site within:	by the client and the contractor.
2.4	Employer's financial arrangements	<i>Own Source</i>
3.2 (e)(ii)	Engineer's Duties and Authority	Variation resulting in an increase of the Accepted Contract Amount in excess of one percent (1%) subject to accumulative Variations not exceeding five percent (5%) of the Accepted Contract Amount.
4.1	Contractor's General Obligation	Warranty Services
4.2	Performance Security (as percentage of the Accepted Contract Amount in Currencies) Percent: 10% Currency: PKR	Ten percent (10%) of the amount stated in the contract document.
4.2.1	List of Insurance Companies	Insurance companies rated by PACRA/VIS having rating AA(+) is acceptable only.
4.7.2	period for notification of errors in the items of reference	Twenty-Eight (28) days
4.19	period of payment for temporary utilities	N/A
4.20	number of additional paper copies of progress reports	06 Nos.
5.1(a)	maximum allowable accumulated value of work subcontracted (as a percentage of the Accepted Contract Amount)	Thirty percent (30%)
5.1(b)	parts of the Works for which subcontracting is not permitted	Not Applicable
6.5	Normal working hours on the Site	08 Hrs per Day.
8.1	Commencement of Works	<i>Within 07 days from the Engineer's Notice to Commence.</i>
8.3	number of additional paper copies of programmes	03 Number of copies.
8.8 & 14.15(b)	Delay Damages payable for eachday of delay	0.05% of the Contract Price stated in the Letter of Acceptance for each day of delay in completion of the works.
8.8	maximum amount of Delay Damages	Ten percent (10%) of the Accepted Contract Amount stated in the Letter of Acceptance.
8.14	Applicability of Incentives for Early	Not Applicable



Sub-Clause	Data to be Given	Data
	Completion	
12.3	Percentage profit	Twenty percent (20%)
13.4. (b)(ii)	percentage rate to be applied to Provisional Sums for overhead charges and profit	Twenty percent (10%)
14.2	Total Advance Payment	Total 10% of Contract Price stated in Letter of Acceptance to be paid in two instalments as per Sub Clause 14.2.2.
14.2.1	List of Insurance Companies	Companies having rating AA (+) rated by PACRA/VIS.
14.2.3	percentage deductions for the repayment of the Advance Payment	Deduction shall be made at the amortization rate of 10 % of the value of the Works executed of each IPC as provided in paragraph (i) of Sub-Clause GCC 14.3, starting from 2 nd IPC provided that the advance payment shall be completely repaid prior to the time when 90% of the Accepted Contract Amount Less Provisional Sums has been certified for payment. It may be more than 10% in the last instalment to ensure full repayment.
14.3	period of payment	28 Days
14.3(b)	number of additional paper copies of Statements	03 Nos.
14.3 (iii)	percentage of retention	Five percent (5%)
14.3 (iii)	Limit of retention money (as a percentage of the Contract Price.	Five percent (5%)
14.5(b)(i)	Plant and Materials for payment when shipped	N/A
14.5(c)(i)	Plant and Materials for payment when delivered to the Site	N/A
14.6.2	minimum amount of Interim Payment Certificate (IPC)	Rs 300 Million
14.7(a)	period of payment of Advance Payment to the Contractor	28 days
14.7b(i)	period for the Engineer to make interim payments to the Contractor under Sub-Clause 14.6 [Interim Payment]	28 days.
14.7b(ii)	period for the Employer to make interim payments to the Contractor under Sub-Clause 14.13 (Final Payment)	28 days.



Sub-Clause	Data to be Given	Data
14.7(c)	period for the Employer to make final payment to the Contractor	56 days
14.8	financing charges for delayed payment	N/A
14.11.1(b)	number of additional paper copies of draft Final Statements	05
14.15	currencies of payment of Contract Price	<i>Pak Rupees</i>
14.15(a)(i)	Proportions or amounts of Local and Foreign currencies	N/A
14.15(c)	currencies and proportions for payment of Delay Damages	Pak Rupees
14.15(f)	rates of exchange	N/A
17.2(d)	forces of nature, the risks of which are allocated to the Contractor	Nil
19.1	permitted deductible limits: i) insurance required for the Works ii) insurance required for Goods iii) insurance required for liability for breach of professional duty iv) insurance required against liability for fitness for purpose (if any is required) v) insurance required for injury to persons and damage to property vi) insurance required for injury to employees other insurances required by Laws and by local practice	i) Five percent (5%) of loss amount on each & every loss ii) Nil iii) Nil iv) Nil v) Nil vi) Nil Nil
19.1	Periods for submission of insurance: a. evidence of insurance b. relevant policies	Not later than the Commencement Date Within twenty-eight (28) day from the Commencement Date
19.2.1(b)	additional amount to be insured (as a percentage of the replacement value)	15% of the replacement value (Accepted Contract Amount)
19.2.2	extent of insurance required for Goods amount of insurance required for Goods	from Ex-Works (i.e., works, factory, warehouse, etc) to delivery at the Site Full replacement value
19.2.3(a)	amount of insurance required for liability for breach of professional duty	Full replacement value of the Works to be designed by the Contractor
19.2.3(b)	insurance required against liability for fitness	Yes



Sub-Clause	Data to be Given	Data
	for purpose	
19.2.3	period of insurance required for liability for breach of professional duty	Until the date of issuance of Performance Certificate
19.2.4	amount of insurance required for injury to persons and damage to property	Injury to person and Fatal case:in accordance with Workmen Compensation Act Damage to Property: <u>as per Third Party Assessment and the number of incidents is unlimited.</u>
19.2.6	other insurances required by Laws and by local practice	All insurances as applicable, to the extent of execution of the project, under Federal and Provincial laws of Islamic Republic of Pakistan.
21.1	time for appointment of the DAAB	Within 28 days from the Commencement Date. In case the Accepted Contract Amount is lesser than PKR one (01) billion, appointment of the DAAB shall be made when Dispute arises between the Parties.
21.1	the DAAB shall comprise	_____ “Three Members”
21.1	List of proposed members of DAAB - proposed by Employer proposed by Contractor	[to be inserted at the time of signing of the Contract] 1. _____ 2. _____ 3. _____ 1. _____ 2. _____ 3. _____
21.2	Appointing entity (official) for DAAB members	CEO Ravi Urban Development Authority from the list of PEC approved arbitrators published at its website
21.6	Rules of Arbitration	PEC Rules of Conciliation and Arbitration or Pakistan Arbitration Act of 1940, if the former is inactive. The place of Arbitration shall be in the Employer’s country: Pakistan



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PART B - SPECIAL PROVISIONS

1.1 Definitions

1.1.31 The Employer is, Ravi Urban Development Authority (RUDA), Engineering Wing of RUDA, 5-C Muslim Town, Facing Canal, Near Punjab Group of Colleges, Lahore., represented by:

Chief Executive Officer, RUDA

151-Abu Bakar Block, Garden Town, Lahore

1.1.35 The Engineer is a competent person appointed by the Managing Director, NESPAK to act as the Engineer on behalf of National Engineering Services Pakistan (Pvt.) Limited, NESPAK House, 1-C, Block N – Model town Extension, Lahore or any other person appointed by the Employer, and notified to the Contractor, to act in replacement of the Engineer. Provided always that except in cases of professional misconduct, the outgoing Engineer is to formulate his clarifications / recommendations in relation to all outstanding matters, disputes and claims relating to the execution of the Works during his tenure.

1.1.76 “Specifications”

Following is added at the end: “and consists of two parts i.e.,

- (i) “Part A – Specific Provisions”; and
- (ii) “Part B – Technical Provisions”.

1.2 Interpretation

“and” is deleted from the end of sub-paragraph (i) and added at the end of sub-paragraph (j).

Sub-paragraph (k) is added:

“(k) The word “tender” is synonymous with “bid” the word tenderer with “bidder”, the words “tender documents” with “bidding documents” and “Schedule of Prices” with “Bill of Quantities”, as applicable.”

1.5 Priority of Documents

The documents listed at (a) through (k) of this Sub-Clause are deleted and substituted with the following:

- a) the Contract Agreement;
- b) the Letter of Acceptance;
- c) the Letter of Technical Bid & Letter of Price Bid;
- d) the Particular Conditions Part A - Contract Data;
- e) the Particular Conditions Part B - Special Provisions;



- f) the General Conditions of Contract;
- g) the Bill of Quantities - (Schedule B to Bid);
- h) the Schedule of Adjustment Data – (Schedule A to Bid);
- i) Completed Schedule of Bids (C to J);
- j) the Specification Part A - Specific Provisions;
- k) the Specification Part B - Technical Provisions;
- l) the Drawings;
- m) the JV / Consortium Undertaking (if the Contractor is a JV / Consortium);
- n) or any other documents.

The addenda/corrigenda, if any, shall be deemed to have been incorporated at the appropriate places in the documents forming the Contract.

1.6 Contract Agreement

In the first line of the first paragraph, the text “35 days” is replaced with “14 days”

In the last line of the 1st paragraph the text “shall be borne by the Employer” is substituted by “shall be borne by the Contractor”.

3.1 The Engineer

In sub-paragraph (a) the text “as defined in the Pakistan Engineering Council Act, 1975 (Act No. V of 1976)” are added after the words “professional engineer”.

3.2 Engineer's Duties and Authority

The Engineer shall obtain the consent in writing of the Employer before acting under the following Sub-Clauses of these Conditions:

- (a) Consenting to the subcontracting of any part of the Works under Sub-Clause 5.1 (Subcontractors);
- (b) Any action under Sub-Clauses 8.9 [Employer’s Suspension] and 8.12 [Prolonged Suspension]’
- (c) Issuance of “Taking Over Certificate” under Sub-Clause 10.1 [Taking Over the Works and Sections];
- (d) Issuing the “Performance Certificate” under Sub-Clause 11.9 [Performance Certificate];
- (e) Sub-Clause 13.1 [Right to Vary]: instructing a Variation, except;
 - (i) in an emergency situation as determined by the Engineer, or
 - (ii) if such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the Contract Data.



- (f) Sub-Clause 13.3 [Variation Procedure]: approving a proposal for Variation submitted by the Contractor in accordance with Sub-Clause 13.3.2 [Variation by Request for Proposal] or 13.2 [Value Engineering];
- (g) Certifying release of second half of the Retention Money under Sub-Clause 14.9 [Release of Retention Money];
- (h) Issuing Final Payment Certificate under Sub-Clause 14.13 [Issue of FPC].

Engineer under Sub-Clause 3.7 [Agreement or Determination], as stated in Sub-Clause 3.2 [Engineer's Duties and Authority] of the General Conditions.

Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the Employer, with any such instruction of the Engineer. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 13 and shall notify the Contractor accordingly, with a copy to the Employer.

Following is added after the words "the Employer's consent is required" in 4th paragraph:

"Stating that the Employer's consent has been obtained for that specified authority"

4.1 Contractor's General Obligations

The following paragraph is added at the end of this sub-clause:

"The Contractor shall provide warranty for all equipment for a period of one (01) year except Computing whose warranty shall be of three years (03) through authorized local distributor commencing from the date of the TOC to the Employer. No equipment shall be accepted without warranty certificate from the manufacturer. It shall cover all costs for WARRANTY SERVICE, including parts replacement, labor, prompt field service, pick-up, transportation, and delivery. No extra cost shall be admissible for Warranty services. The Bidder shall provide warranty of all Equipment.

4.2 Performance Security

4.2.1 "Contractor's Obligation"

The first paragraph of this sub-clause is deleted and replaced with the following



text:

The Contractor shall provide Performance Security to the Employer in the prescribed form. The said Security shall be furnished or caused to be furnished by the Contractor within 7 days after the receipt of the Letter of Acceptance. The Performance Security shall be of an amount equal to 10% of the Contract Price stated in the Letter of Acceptance.

In case of Joint Venture, the Performance Security shall be in the name of the Joint Venture or in the name of Lead/either firm of the JV or in ratio of shares of the individual JV partners.

Such Security shall be in the form of:

- i. Ten (10) percent of the Contract Amount in the form of (a) bank guarantee from any Scheduled Bank in Pakistan or (b) bank guarantee from a bank located outside Pakistan duly counter-guaranteed by a Scheduled Bank in Pakistan or Insurance Guarantee by a AA (+) rated company PACRAVIS.

Performance Security for the full amount of 10% shall remain valid till the date certified in the Taking Over Certificate (TOC) and half of it i.e., 5% shall be released upon issuance of TOC. Thereafter, the Performance Security for the amount of 5% arranged bank guarantee shall remain valid till the issuance of Performance Certificate.

The cost of complying with requirements of this Sub-Clause shall be borne by the Contractor.

4.3 Contractor's Representative

In second paragraph the text "professional engineer as defined in the Pakistan Engineering Council Act, 1975 (Act No. V of 1976) (having temporary licence in case of foreign engineer under Section 12 of the Pakistan Engineering Council Act, 1975 (Act No. V of 1976)" are added after the words "qualified, experienced".

In the 3rd paragraph the words "28 days" are substituted by "14 days". In 2nd line of 4th paragraph the text "or appoint a replacement" is substituted by "except appointment of a suitable temporary replacement is deployed at the Site"

4.4 Contractors Documents.

4.4.2 As-Build Record

First paragraph is deleted and the text in the last paragraph is substituted with the following:

"The Contractor shall furnish to the Engineer 6 copies, one reproducible and one electronic copy (provided the Engineer has made available to the Contractor editable form of the Drawings) of all Drawings amended to conform to the Works as built. In case the Engineer does not make available to the Contractor editable form of the Drawings, the Contractor shall furnish to the Engineer as-built data for



incorporation in the Drawings. Upon receipt of PDF versions of the as-built drawings prepared by the Engineer, the Contractor shall furnish to the Engineer 6 copies and one reproducible of these Drawings.

The price of such Drawings shall be deemed to be included in the Contract Price.”

Following Sub-Clause is added:

4.4.4 “Shop Drawings”

The Contractor shall submit to the Engineer for review 3 copies of all shop and erection drawings applicable to this Contract as per provision of relevant Sub-Clause of the Contract.

Review and approval by the Engineer shall not exceed 21 days and be construed as a complete check but will indicate only that the general method of construction and detailing is satisfactory and the Engineer’s review or approval shall not relieve the Contractor of any of his responsibilities under the Contract.

4.8 Health and Safety Obligations

The following text is added at the end of this Sub-Clause:

In the event of work being carried out outside the normal working hours and in the event of work being carried out at night, the Contractor shall at his own cost, provide and maintain such good and sufficient light as will enable the work to proceed satisfactorily and without danger. The approaches to the Site and the Works where the night work is being carried out shall be sufficiently lighted. All arrangement adopted for such lighting shall be to the satisfaction of the Engineer.

The Contractor shall:

- Prevent all road accidents that might arise as a consequence of its activities;
- Adhere to the following principles of Environmental Management Guidelines;
- Adhere to guidelines issued by EPA Punjab;
- All the quarterly testing as per EPA standards shall be borne by the Contractor;
- Minimize gaseous emissions, liquid effluents and discharge of solid waste that is known to have a negative impact on the environment;
- Within fourteen (14) days of the commencement date the Contractor shall submit his (Project Health and Safety Plan) to the Engineer review, He should nominate the key person in his organization who will be responsible for administrating the plan;
- In order to provide for the safety, health and welfare of persons, and for



prevention of damage of any kind, all operations for the purposes of or in connection with the Contract shall be carried out in compliance with the Safety Requirements of the Government of Pakistan with such modifications thereto as the Engineer may authorise or direct and the Contractor shall take or cause to be taken such further measures and comply with such further requirements as the Engineer may determine to be reasonably necessary for such purpose;

- All employees shall be physically qualified for performing the duties to which they are assigned, Operators of equipment and vehicles shall be qualified (licensed) they shall be able to read and understand the signs, signals and operating instructions in use;
- Contractor shall protect all people involved with or potentially affected by its operation from the adverse consequences of fire or explosions and shall safeguard all Engineer's assets to a level commensurate with their critically;
- Contractor must also provide adequate protective clothing and equipment PPE's to prevent, so far reasonably practicable risk of accidents or adverse effect on safety and health;
- Contractor is required to ensure that, so far as is reasonably practicable, the workplace, machinery, equipment and process under control are safe and without a risk to health;
- Prior to start of work, Contractor must provide measures to deal with emergencies and accidents, including adequate first aid arrangements, in the ratio of one (01) unit each twenty-five (25) persons or less, also and emergency vehicle, doctor and equipped clinic in case of exceeding 500 workers or providing private personnel health card for each worker at close clinic to the project as per prevailing Pakistan Labour Law;
- Contractor shall recognize the responsibility to protect the environment in order that the future well-being of society is safeguarded and make every effort to minimize the impact of its operations on the environment and people;
- Contractor's liability insurance should satisfy requirements to carry appropriate insurance so that a worker who is harmed is assured of receiving compensation. Other cost that be incurred relate to:
 - Damage to properties, goods and equipment
 - Accident investigations
 - Possible fines and associated legal fees
- Qualified and experienced safety officers and the number of officers and safety staff that comply to international safety practices as applicable, one officer for each 150 workers shall be deployed at the site;
- The Contractor and his supervisors/foremen are responsible for administration of comprehensive Project HSE plan. The Project HSE Plan shall embody prevention of accidental injury, occupational illness and property damage. The Contractor shall provide and maintain a safe hazard



free workplace for their employees, for fellow workers and general public. The project HSE plan shall ensure the involvement and active participation of all project employees by requiring safety training, which shall promote recognition of unsafe acts, unsafe conditions and potential and actual hazards, and the immediate corrective action to be taken. All the employees shall be constantly aware of their responsibilities to work in a safe manner;

- The Contractor shall identify the hazards involved in the Project during the Contract execution and shall implement the necessary controls to eliminate or mitigate these hazards.
- Expeditious response in case of injury, fire, security and natural disaster etc. to be ensured;
- Water sprinkling within the Project boundary to be ensured on as required basis;
- Adequate number of manpower to be deployed depending upon the weight and extent of the material/equipment to be lifted;
- Fall protection above 1.8 m (6 ft.) to be provided with guard / handrails, full body harness and safety nets;
- Guard rails and toe boards above 20 m (65 ft.) required to cordon off the Project site to be provided;
- Scaffolding and ladder not to be used without approval from safety staff;
- Angle of repose to be calculated and implemented where the depth of excavation exceeds 1.2 m;
- Drilling bore holes and pits to be covered and barricaded;
- Noise exceeding 85 dBA to be avoided for daily exposure and 140 dBA for peak exposure, Ear plugs and earmuffs to be ensured for peak exposure;
- 3-wire type extension cords to be used for electrical works and worn electrical cables to be discarded;
- Waste disposal at Government approved locations to be done on daily basis.

Notwithstanding the provisions contained under this Sub-Clause, any additional cost with regard to HSE as incurred by the Contractor with the consent of the Engineer duly approved by the Employer, shall be payable to the Contractor.

4.20 Progress Report

At the start of sub-paragraph (a) add “Executive summary, Contract Startup Activities, salient contractual and project information,”

At the end of sub-paragraph (g) the word “and” is deleted and at the end of sub-paragraph (h) the full stop (.) is replaced with “;”, and the following new sub-paragraphs are added as:

- (i) planned programme for the execution of the Works for next 56 days to enable the Engineer to determine its programme of inspection and testing;



- (j) monthly summary of daily job record indicating weather conditions, deployment of Contractor's Equipment, labour employment, local material procurement and material import, if any;
- (k) Risk Management;
- (l) Performance Security / Guarantees & Insurances Details;
- (m) Change Management;
- (n) Financial Management;
- (o) Completion of Works and Contract Closure;
- (p) Drone Video Progress Documentary; and
- (q) Time Lapse & Real Time Web Based Progress Centre.

During the period of the Contract, the Contractor shall keep a daily record of the work progress, which shall be made available to the Engineer as and when requested. The daily record shall include particulars of weather conditions, number of men working, deliveries of materials, quantity, location and assignment of Contractor's equipment.

1. Drone Video Progress Documentary:

The Contractor shall document the entire project development from various position and capture a complete video documentary on monthly basis with high resolution drone cameras. Properly comprehensive progress video as required by The Engineer/Employer.

Drone video Progress Documentary must be submitted on Monthly Basis as per satisfaction of The Engineer/Employer along with Monthly Progress Report on 8th Day of Each Month.

2. Time Lapse & Realtime Web Based Progress Centre

The Contractor shall document the entire project development and project assets from various static angles by placing several Time-Lapse high resolutions cameras and setup an un-interrupted web-based progress centre.

5.1 Subcontractors

Add the following text at the end of paragraph (ii):

"Under Schedule to Bid"

The following is added at the end of the last paragraph of Sub- Clause 5.1:

"All subcontracts relating to the Works shall include provisions which entitle the Employer to require the subcontract to be assigned to the Employer under subparagraph (a) of Sub- Clause 15.2.3 [After Termination].

The Contractor shall give reasonable opportunity to contractors from Islamic Republic of Pakistan for subcontracts for the Works, and endeavour to employ



such contractors as Subcontractors.”

5.2 Nominated Subcontractors

5.2.2 Objection to Nomination

In sub-paragraph (c), “and” is deleted from the end of (i); “.” at the end of (ii) is replaced with: “, and”.

The following is then added as (iii):

“(iii) be paid only if and when the Contractor has received from the Employer payments for sums due under the Subcontract referred to under Sub-Clause 5.2.3 [Payment to nominated Subcontractors].”

6.1 Engagement of Staff and Labour

The following paragraph is added at the end of the Sub-Clause:

“The Contractor shall, to the extent practicable and reasonable, employ staff (not less than 50%) and labour (not less than 85%) with appropriate qualifications and experience from sources within the Islamic Republic of Pakistan.”

6.7 Health and Safety of Personnel

The existing text is substituted with the following:

“In order to provide for the safety, health and welfare of persons, and for prevention of damage of any kind, all operations for the purposes of or in connection with the Contract shall be carried out in compliance with the Safety Requirements of the Government of Pakistan with such modifications thereto as the Engineer may authorize or direct and the Contractor shall take or cause to be taken such further measures and comply with such further requirements as the Engineer may determine to be reasonably necessary for such purpose. The Contractor shall also provide all other medical services and appoint a health and safety officer at Site if stated in the Specifications. In case of any fatality or serious accident, the Contractor shall, in addition, notify the Engineer immediately by the quickest available means.”

6.8 Contractor's superintendence

Insert at the end of sub-paragraph (a) of this Sub-Clause:

"or, if not, the Contractor shall make competent interpreters available during all working hours, in a number sufficient for those persons to properly perform their superintendence duties"

The following text is added at the end of this Sub-Clause:

“The Contractor's authorized representative and his other engineers working at site shall possess valid registration with the Pakistan Engineering Council.



The Contractor's authorized representative at Site shall be authorized to exercise adequate administrative and financial powers on behalf of the Contractor so as to achieve completion of the Works as per the Contract."

6.12 Key Personnel

The following is inserted at the end of the last paragraph:

"If any of the Key Personnel are not fluent in this language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer."

The following Sub-Clauses 6.13 to 6.26 are added at the end of Sub-Clause 6.12:

6.13 Foreign Personnel

The Contractor may bring in to the Country any foreign personnel who are necessary for the execution of the Works to the extent allowed by the applicable Laws. The Contractor shall ensure that these personnel are provided with the required residence visas and work permits. The Employer will, if requested by the Contractor, use all reasonable endeavours in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national, or government permission required for bringing in the Contractor's personnel.

The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.

6.14 Supply of Food stuffs

The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor's Personnel for the purposes of or in connection with the Contract.

6.15 Supply of Water

The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.

6.16 Measures against Insect and Pest Nuisance

The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.



6.17 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereto by Contractor's Personnel.

6.18 Arms and Ammunition

The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.

6.19 Festivals and Religious Customs

The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.

6.20 Funeral Arrangements

The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of its local employees who may die while engaged upon the Works.

6.21 Forced Labour

The Contractor, including its Subcontractors, shall not employ or engage forced labor which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labor, such as indentured labor, bonded labor or similar labor-contracting arrangements.

6.22 Child Labour

The Contractor, including its Subcontractors, shall not employ or engage child labor in accordance with relevant law(s) in force in Islamic Republic of Pakistan.

6.23 Employment Records of Workers

The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 (*Contractor's Records*).

6.24 Worker's Organization

The Contractor shall comply with the relevant labour laws of Pakistan which recognize workers' rights to form and to join workers' organizations/Trade Union of their choosing and to bargain collectively without interference.



6.25 Non-Discrimination and Equal Opportunity

The Contractor shall not make decisions relating to the employment or treatment of Contractor's Personnel on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment of Contractor's Personnel on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to any aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, and disciplinary practices.

Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the job shall not be deemed discrimination. The Contractor shall provide protection and assistance as necessary to ensure nondiscrimination and equal opportunity, including for specific groups such as women, persons with disabilities, migrant workers and children (of working age in accordance with Sub-Clause 6.22).

6.26 Epidemics

In the event of any out-break of illness of epidemic nature, the Contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government or the local medical or sanitary authorities for the purpose of overcoming the same.

7.7 Ownership of Plant and Materials

The following is added before the first paragraph:

"Except as otherwise provided in the Contract,"

The following is added at the end of the Sub-Clause:

"No Plant and/or Materials that is the property of the Employer shall be removed from the Site. Contractor shall be responsible for transportation of equipment / plant at site. It will be the responsibility of contractor to ensure the safety of delivered equipment / plant at site. Employer will in no case be held liable for any damage or loss of equipment delivered or erected at site. Moreover, contractor will not be allowed to relocate or install the delivered equipment / plant without the permission of Employer. If it becomes necessary to:

- (i) remove any item of such Plant from the Site for the purposes of repair, the Contractor shall give a Notice, with reasons, to the Engineer requesting consent to remove the defective or damaged item off the Site. This Notice shall clearly identify the item of defective or damaged Plant, and shall give details of: the defect or damage to be repaired; the place to which defective or damaged item of Plant is to be taken for repair; the transportation to be used (and insurance cover for such transportation); the proposed inspections and



- testing off the Site; and the planned duration required before the repaired item of Plant shall be returned to the Site. The Contractor shall also provide any further details that the Employer may reasonably require; or
- (ii) replace any item(s) of such Plant and/or Materials, the Contractor shall give a Notice, with reasons, to the Engineer clearly identifying the item(s) of Plant and/or Materials to be replaced, and giving details of the due date of delivery to the Site of the replacement item(s).

Where any item of Plant and/or Materials has become the property of the Employer under this Sub-Clause before it has been delivered to the Site, the Contractor shall ensure that such an item is not moved except for its delivery to the Site.

The Contractor shall indemnify and hold the Employer harmless against and from the consequences of any defect in title or encumbrance or charge (except any reasonable restriction arising from the intellectual property rights of the manufacturer or producer) on any item of Plant and/or Materials that has become the property of the Employer under this Sub-Clause."

The following Sub-Clause 7.9 is added after Sub Clause 7.8:

7.9 Use of Pakistani Materials and Services

The Contractor shall, so far as may be consistent with the Contract, make the maximum use of materials, supplies, plant and equipment indigenous to or produced or fabricated in Pakistan and services available in Pakistan provided such materials, supplies, plant, equipment and services shall be of required standard.

8.1 Commencement of Works

The following is added before the first paragraph:

"After signing of the Contract Agreement by both Parties," and thereafter the word "The" is replaced with the word "the".

The words "14 days" in the second line of the first paragraph are deleted and replaced with the words "7 days".

8.3 Programme

The following text is added after the first paragraph:

The initial programme and each revised programme shall be:

- 1) Developed and presented on Project Management Software Primavera Project Planner P6 or later.
- 2) Developed on the basis of Work Breakdown Structure provided or approved by The Engineer/Employer.
- 3) Detailed up to level 4 or as required by The Engineer/Employer.
- 4) Appropriate quantity of direct resources (material, labour, equipment) should be allocated to all activities and showed in submitted construction schedule. Labour resource should be divided according to related trades



(e.g. Mason, Operator, helper etc.) Contractor should make sure that no resource is being overallocated.

- 5) BOQ amount should be loaded to each construction activity. Earned Value Management Reporting to be ensured accordingly.
- 6) Identifying the critical path activities, showing all works including temporary works, the relation between early and late starting dates for each activity until completion, which will be the same as the specified Project end date.

8.5 Extension of Time for Completion

The following is added after the first paragraph (c):
“For last five years”.

12.2 Method or Measurement

The following paragraph is added at the end of the Sub-Clause:

“Summary of measured quantity for payment shall be delineated item-wise under four heads namely; “Schedule of Prices Quantity”, “Quantity Executed To-date”, “Quantity Certified Previously” and “Net Quantity Executed under this Certificate”.

12.3 Valuation of the Works

In sub-paragraph (b)(i) the text “10%” is deleted and replaced with the text “25%”.

The text of the sub-paragraphs (b)(ii) and (b)(iii) are deleted.

The sub-paragraph (b)(iv) shall be read as sub-paragraph (b)(ii).

The following text is added at the end of sub-paragraph (b):

“If, on the issue of the Taking-Over Certificate for the whole of the Works, it is found that as a result of:

- (a) all varied work valued under this Sub-Clause and Sub-Clauses 13.1, 13.2, and 13.3,
- (b) all adjustments upon measurement of the estimated quantities set out in the Bill of Quantities, excluding Provisional Sums, dayworks and adjustments of price made under Clause 13.7,
- (c) but not from any other cause, there have been additions to or deductions from the Contract Price which taken together are in excess of 15 per cent of the "Effective Contract Price" (which for the purposes of this Sub-Clause shall mean the Contract Price, excluding Provisional Sums and allowance for dayworks, if any) then and in such event (subject to any action already taken under any other Sub-Clause of this Clause), after due consultation by the Engineer with the Employer and the Contractor, there shall be



added to or deducted from the Contract Price such further sum as may be agreed between the Contractor and the Engineer or, failing agreement, determined by the Engineer having regard to the Contractor's Site and general overhead costs of the Contract. The Engineer shall notify the Contractor of any determination made under this Sub-Clause, with a copy to the Employer. Such sum shall be based only on the amount by which such additions or deductions shall be in excess of 15 per cent of the Effective Contract Price.

The text of the fifth paragraph is deleted and replaced with the following:

“Each new rate or price shall be derived from any relevant rates or prices specified in the Bill of Quantities. If altered, additional or substituted work includes any item of work, for which no rate is specified in the Bill of Quantities (BOQ) of this Contract, then the rate of that particular item shall be taken or derived from the Market Rates System (MRS) (input rates), Government of the Punjab at the time of Bidding. If the rate of such item is either not available in MRS or not derivable from MRS input rates, then that rate shall be probed by the Engineer on the basis of market rates, together with the applicable percentage of overhead charges and profit of twenty percent (20%).”

13.4 Provisional Sums

The following paragraph is inserted as the penultimate paragraph:

“The Provisional Sum shall be used to cover the Employer’s share of the DAAB members’ fees and expenses, in accordance with Clause 21. No prior instruction of the Engineer shall be required with respect to the work of the DAAB. The Contractor shall submit the DAAB members invoices and the satisfactory evidence of having paid 100% of such invoices as part of the substantiation of those Statements submitted under Sub-Clause 14.3.”

13.6 Adjustments for Changes in Laws

The following paragraphs are added at the end of the Sub- Clause:

“Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time if the relevant delay has already been taken into account in the determination of a previous extension of time and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the Table of Adjustment Data in accordance with the provisions of Sub-Clause 13.7 (*Adjustments for Changes in Cost*).”

14.2 Advance Payment

14.2.1 Advance Payment Guarantee

The entity issuing the Advance Payment Guarantee and its form shall be as under:

The Advance Payment Guarantee shall be in the form of Guarantee issued by (a) a Scheduled Bank in Pakistan or (b) a foreign bank duly counter-guaranteed



by a Scheduled Bank in Pakistan for the amount of the Total Advance Payment in accordance with Sub-Clause 14.2.

In case of Joint Venture, the Advance Payment Guarantee(s) shall be in the name of the Joint Venture or in the name of Lead/either firm of the JV or in ratio of shares of the individual JV partners.

14.2.2 Advance Payment Certificate

The text of the first paragraph of the Sub-Clause is deleted and replaced with the following text:

“The Employer shall sanction an interest free Advance Payment equal to ten percent (10%) of the Contract Price stated in the Letter of Acceptance. Initially, the Engineer shall issue an Advance Payment Certificate equal to five percent (5%) for the advance payment within 28 days after:

The text of sub-paragraph (a) is deleted and replaced with the following text:

- i. submission of the Performance Security, in the form and issued by an entity in accordance with Sub-Clause 4.2.1 [*Contractor's Obligations*];
- ii. signing of the Contract Agreement between the Parties in accordance with Sub-Clause 1.6 [*Contract Agreement*];
- iii. the Advance Payment Guarantee for the Total Amount of the Advance Payment, in the form and issued by an entity in accordance with Sub-Clause 14.2.1 [*Advance Payment Guarantee*];
- iv. submission of initial programme under Sub-Clause 8.3 [*Programme*];”

The word “and” at the end of the sub-paragraph (a) is deleted.

The character “.” at the end of sub-paragraph (b) is deleted and replaced with the character “;”

Following sub-paragraphs (c) & (d) are added after sub-paragraph (b):

- (c) A further sum equal to five percent (05%) of the Contract Price shall be paid to the Contractor upon the certification of the Engineer to the effect that Contractor's mobilization is complete in the following aspects and he is ready to commence the works:
 - i. Approval of initial programme under Sub-Clause 8.3 [*Programme*];
 - ii. Provision of machinery and equipment at the Site, as instructed by the Engineer.
 - iii. Submission of a statement indicating status / plan / commitment for mobilization / hiring / purchase of remaining machinery.
 - iv. Completion of facilities to be provided to the Engineer or the Engineer's Representative as per Contract Document.
 - v. Submission of all guarantees as required by the Contract.
 - vi. Establishment of Employer's, Engineer's and Contractor's site office.



- vii. Deployment of Contractor's technical as well as managerial staff as per requirement of site.
- viii. Proper taking over of the site.
- ix. Installation of project boards at all ends.
- x. Completion of safety arrangements for the traffic and public in general.
- xi. The Advance Payment shall not be subject to retention; and

(d) the Engineer has received a copy of the Contractor's application for the second tranche of advance payment under Sub-Clause 14.2.1 [Advance Payment Guarantee].

14.6 Issue of IPC

14.6.1 The IPC

In the first line of the 1st paragraph the words "28 days" are substituted by "14 days"

14.7 Payment

The words "or through crossed cheque in favour of the Contractor or JV partners. The Payment to JV partners shall be made at the request of the Joint Ventures in the ratio of their shares specified by them" are added at the end of the Sub-Clause.

14.8 Delayed Payment

The text of this Sub-Clause is deleted in its entirety.

14.16 Secured Advance on Materials

- (a) The Contractor shall be entitled to receive from the Employer, Secured Advance against an indemnity bond acceptable to the Employer of such sum as the Engineer may consider proper in respect of non-perishable materials brought at the Site but not yet incorporated in the Permanent Works provided that:
- (i) The materials are in accordance with the Specifications for the Permanent Works;
 - (ii) Such materials have been delivered to the Site and are properly stored and protected against loss or damage or deterioration to the satisfaction of the Engineer but at the risk and cost of the Contractor;
 - (iii) The Contractor's records of the supplies, orders, receipts and use of materials are kept in a proper format and such records shall be available for inspection by the Engineer;
 - (iv) The Contractor shall submit with his monthly statement the estimated value of the materials on Site together with such documents as may be



required by the Engineer for the purpose of valuation of materials and providing evidence of ownership and payment therefore;

- (v) Ownership of such materials shall be deemed to vest in the Employer and these materials shall not be removed from the Site or otherwise disposed of without written permission of the Employer; and
- (vi) The sum payable for such materials on Site shall not exceed 75 % of the (i) landed cost of imported materials, or (ii) ex-factory / ex-warehouse price of locally manufactured or produced materials, or (iii) market price of other materials.

(b) The recovery of Secured Advance paid to the Contractor under the above provisions shall be affected from the monthly payments on actual consumption basis.

(a) No secured advance under this clause shall be admissible except in respect of the following items:

- (i) Cement
- (ii) Steel
 - a. M.S Bars (Plain & Deformed)
 - b. M.S. Sections
 - c. High Tensile Steel Wire.
 - d. M.S. & G.I. Pipes.
 - e. M.S. & G.I. Sheet.
 - f. C.I. Specials.
- (iii) Asbestos Cement Pipes.
- (iv) P.V.C./uPVC Pipes.
- (v) PPRC Pipes.
- (vi) HDPE Pipes.
- (vii) R.C.C./P.C.C. Pipes.
- (viii) Bitumen.
- (ix) High Speed Diesel.
- (x) Bricks.
 - a. 1st Class Bricks.
 - b. Tiles.
 - c. Gutka.
- (xi) Stone aggregates
 - d. Stone Metal for Sub Base.
 - e. Stone Metal for Base Course.
 - f. Crushed Bajri.
- (xii) Harrow Sand
- (xiii) Tiles (Ceramic and Porcelain)
- (xiv) Wood
- (xv) Aluminum Sections
- (xvi) Paint (Interior & Exterior)
- (xvii) Labour



14.17 Payment of Items with Imbalance Rates

"If the Contractor quotes unit rates in the Bill of Quantities that significantly deviate from the rates provided in the Technically Sanctioned Estimate, the following payment mechanism shall apply:

- For items where the quoted rates are lower than the rates in the Technically Sanctioned Estimate, payment shall be made in full at the tendered rate upon execution of such items.
- For items where the quoted rates are 10% higher than the rates in the Technically Sanctioned Estimate, payment shall be made at the rates specified in the Technically Sanctioned Estimate upon execution of such items.
- The balance payment for items with higher rates shall be withheld by the Engineer until the completion of all works associated with the lower-rate items to ensure proper execution.

The Engineer's determination regarding imbalanced rates and corresponding payment adjustments shall be final and binding, subject to dispute resolution under Clause 21."

15.2 Termination for Contractor's Default

15.2.1 Notice

Following text is added at the end of sub-paragraph (h) of this Sub-Clause:

"For the purposes of this Contract, corrupt and fraudulent practices have been defined in accordance with RUDA Procurement Regulations."

15.4 Payment after Termination

The following text is added at the end of this Sub-Clause:

"The Employer shall be entitled to sell any of the Contractor's Equipment, Temporary Works and unused materials and apply the proceeds of sale towards payment of any debt due from the Contractor to the Employer under this Clause including any outstanding payments to the Subcontractors.

16.2 Termination by Contractor

16.2.1 Notice

The sub-paragraph (j) is deleted in its entirety.

At the end of sub-paragraph (i) ";" or" is replaced with "." and at the end of sub-paragraph (h) ";" is replaced with "; or".

In sub-paragraph (f) "84 days" are replaced with "180 days" and text "for reasons not attributable to the Contractor" is added at the end.

17.1 Responsibility for Care for the Works

After the two instances of "Goods" in the last paragraph, the words "Employer-Supplied Materials and/or Employer's Equipment" are added.

The following Sub-Clause 17.7 is added after Sub-Clause 17.6:



17.7 Use of Employer's Accommodation / Facilities

The Contractor shall take full responsibility for the care of the items of the Employer's facilities and/or accommodation, if any, as detailed in the Specification, from the date of use and/or occupation by the Contractor until the date on which such use and/or occupation is re-vested in the Employer.

If any loss or damage happens to any of the above items during a time while the Contractor is responsible for its care, arising from any cause other than a cause for which the Employer is responsible or liable, the Contractor shall promptly rectify the loss or damage at the Contractor's risk and cost.

18.1 Exceptional Events

The words "or disorder" are replaced with "disorder or sabotage" in sub-paragraph (c) of the Clause.

18.4 Consequence of an Exceptional Event

The following is added at the end of sub-paragraph (b) after deleting the ".":

“,including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Exceptional Events, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 19.2 (*Insurance to be provided by the Contractor*).”

18.5 Optional Termination

In sub-paragraph (c), the words "and necessarily" are added after the words "was reasonably".

19.1 General Requirements

Following text is added at the end of first paragraph:

“The Contractor shall immediately after the date of the Letter of Acceptance submit the draft of insurance policies for the Employer's consent.”

Following text is added at the end of third paragraph:

“The Contractor shall, within the respective periods stated in the Contract Data submit to the Engineer and the Employer a) evidence that the insurances described in this Clause have been effected, and b) copies of policies of the insurances described in Sub-Clauses 19.2.1, 19.2.4 and 19.2.5.”

19.2 Insurance to be Provided by the Contractor

19.2.5 Injury to employees

The words "sickness, disease" are deleted in the third line of first paragraph.



The following Sub-Clause is added after Sub-Clause 19.2.6:

19.2.7 Insurance Company

“The Contractor shall be obliged to place all insurances described in this Clause with insurers listed in the Contract Data and rated by PACRA/VIS of AA(+) rating.

21.6 Arbitration

The word “international” is deleted in the sixth line of first paragraph. The text of sub-paragraph (a) is substituted with the following:

“the Dispute shall be finally settled under the Rules of Arbitration, specified in the Contract Data;”

The following Clauses are added after Clause 21:

23 Taxes

The Contractor, Subcontractors and their employees shall be liable to pay income tax, withholding tax, super tax and other taxes on income arising out of the Contract. The rates and prices as stated in the contract shall be deemed to cover all such taxes.

24 Integrity Pact

If it is found and established at any stage that the Contractor or any of his Subcontractors, agents or servants have violated or involved in violation of the Integrity Pact signed by the Contractor then the Employer shall be entitled to:

- (a) recover from the Contractor an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by the Contractor or any of his Subcontractors, agent or servants;
- (b) terminate the Contract; and
- (c) recover from the Contractor any loss or damage to the Employer as a result of such termination or of any other corrupt business practices of the Contractor or any of his Subcontractors, agent or servants.

The termination under sub-paragraph (b) of this Sub-Clause shall proceed in the manner prescribed under Sub-Clause 15.1 to 15.4 and the payment under Sub-Clause 15.4 shall be made after having deducted the amounts due to the Employer under sub-paragraph (a) and (c) of this Sub-Clause.

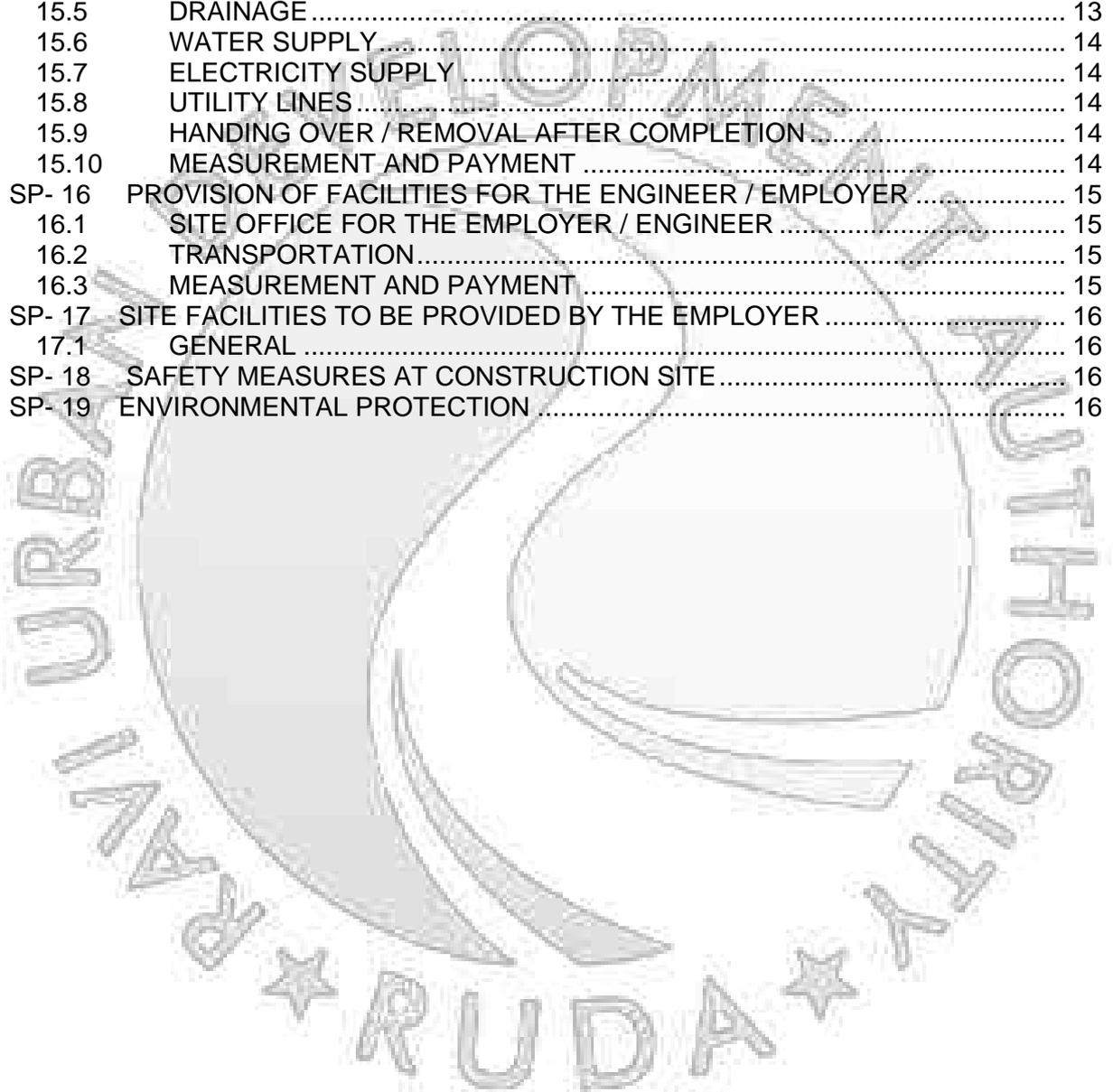


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SPECIFICATIONS – SPECIFIC PROVISIONS

SP- 1 GENERAL

The Ravi Urban Development Authority (RUDA) aims to rehabilitate and develop the dying River Ravi into a perennial freshwater body, to allow high quality waterfront urban development on the reclaimed and adjoining land.

This project aims for Construction of Bridge to Jahangir Tomb Over Ravi River.

SP- 2 DESCRIPTION OF THE WORKS

2.1 The works included in this Contract are as follows but not limited to this item only:

- *At Grade Improvement Lahore Ring Road*
- *Construction of Bridge*
- *Construction of Main Parking*
- *Improvement of Existing Parking*

SP- 3 SITE OF WORKS

The Employer will give to the Contractor possession of as much of the area designated and defined as the Site and shown on the drawings as may be required to implement the Works, but subject to any restrictions set out in the Contract, when the Engineer's Notice to Commence work is given.

SP- 4 SETTING OUT

Setting out data and control points for execution of works, will be provided by the Engineer following the 'Notice to Commence' but in any case, prior to start of work.

SP- 5 CLIMATOLOGICAL DATA

Lahore features a five-season semi-arid climate with five seasons: foggy winter (30 Nov – 15 Feb) with few western disturbances causing rain; pleasant spring (16 Feb – 15 April); summer (15 April – 30 June) with dust, rain storms and heat wave periods; rainy monsoon (1 July – 16 September); and dry autumn (16 September – 14 November).

The hottest month is June, where average highs routinely exceed 40 °C (104.0 °F). The wettest month is July, with heavy rainfalls and evening thunderstorms with the possibility of cloudbursts. The coolest month is January with dense fog.

The city's record high temperature was 50.4 °C (122.7 °F), recorded on 5 June 2003. On 10 June 2007, a temperature of 48 °C (118 °F) was recorded; The lowest temperature recorded in Lahore is –2.2 °C, recorded on 17 January 1935.

**SP- 6 UTILITIES**

The Contractor shall directly enquire from the utility companies about availability of connections of electric power supply and telephone lines for his use at the Site. In case of non-availability of electric power supply from national grid to meet his requirements, the Contractor shall provide at his own cost electric power generators as necessary for supply of power for the various parts of the Works including his camps, offices, stores, workshops and other installations as well as for the Engineer's Site office provided under Sub-Clause SP 16.1. The Contractor shall bear all costs for constructing, operating and maintaining the generation system, including the standby generation system, and distribution system including providing diesel, oil or other consumables and all services and necessary attendance to ensure uninterrupted power supply at all times.

The Contractor shall make his own investigations and arrangements for supply of water of acceptable quality for construction requirements and safe drinking water for his staff and workmen and for the staff of the Engineer.

No separate payment will be made to the Contractor for works performed under this Clause and the costs thereof shall be deemed to be included in the rates and prices of the various items in the Bill of Quantities.

SP- 7 EXTENT OF WORK

The Contractor shall remove all debris and unsuitable construction. Any depressions shall be filled by the contractor and compacted to the Engineer's satisfaction with no additional cost. The contractor shall construct the Works in accordance with the Drawings and Specifications and as directed by the Engineer. The Contractor shall procure, furnish, provide and arrange all the necessary construction materials, equipment, transportation, fuel, electric power, water and services; be responsible for the construction and maintenance of the construction camps, offices, workshops and access roads that he may require, and perform all other work necessary for completion of the Works described herein, in complete conformity with the Contract.

SP- 8 DRAWINGS**8.1 BIDDING DRAWINGS**

The Drawings provided at end of Bid Documents and hereinafter referred to as Bid Drawings show the scope of the work to be performed by the Contractor. The Bid Drawings shall not be used as a basis for fabrication or construction, but may be used as the basis for planning, scheduling and placing preliminary orders for materials, subject to corrections based on future issue of Construction Drawings. Any other Drawings if issued through Addenda, before opening of Tenders, shall become part of the Bid Drawings.

8.2 CONSTRUCTION DRAWINGS

After award of Contract, Bidding Drawings will be replaced by Drawings issued by



the Engineer for Construction, with such modifications as may be necessary. The Drawings Issued for Construction will include Bid Drawings re-issued, Bidding Drawings modified and additional Drawings as required to develop in greater detail the construction required and shall be referred to hereinafter as “Construction Drawings”. The Construction Drawings that show changes from the Tender Drawings and Specifications, will be reviewed by the Engineer for determination of adjustments, if any, of the Contract Price in accordance with the relevant provisions of General Conditions of Contract. The work shall be executed in conformity with the Construction Drawings.

The Engineer and Contractor shall jointly prepare a schedule for issuance of Drawings Issued for Construction of the various parts of the Works based on a list of drawings provided by the Engineer.

8.3 CHECKING DRAWINGS

The Contractor shall carefully check all Construction Drawings as soon as practicable after receipt thereof, and shall promptly advise the Engineer of any errors if discovered.

SP-9 RIGHT TO CHANGE

The Engineer may find it desirable to change location, alignment, dimensions or design of one or more of the features of the Works to conform to the newly disclosed conditions. Toward this end, the Engineer reserves the right to make such reasonable changes, and the Contractor's operations shall be conducted so as to accommodate any such changes in the Works.

SP-10 DRAWINGS AND DATA TO BE FURNISHED BY THE EMPLOYER / ENGINEER

10.1 PROCEDURE FOR SUBMITTAL OF CONTRACTOR'S DRAWINGS

All drawings showing construction details shall be provided by the Employer/Engineer.

10.2 OTHER DRAWINGS

Other drawings additional to those referred to hereinabove required by the Specifications showing proposed methods of constructing Temporary Works shall also be submitted to the Engineer for approval.

10.3 OWNERSHIP OF DRAWINGS

All the drawings, details, bills of materials and any other information or documents furnished by the Engineer shall become the property of the Employer/Engineer.

As-Build Record:

The Contractor shall furnish to the Engineer 6 copies, one reproducible and one electronic copy (provided the Engineer has made available to the Contractor editable form of the Drawings) of all Drawings amended to conform to the Works as built. In



case the Engineer does not make available to the Contractor editable form of the Drawings, the Contractor shall furnish to the Engineer as-built data for incorporation in the Drawings. Upon receipt of PDF versions of the as-built drawings prepared by the Engineer, the Contractor shall furnish to the Engineer 6 copies and one reproducible of these Drawings.

The price of such Drawings shall be deemed to be included in the Contract Price.”

Shop Drawings:

The Contractor shall submit to the Engineer for review 3 copies of all shop and erection drawings applicable to this Contract.

Review and approval by the Engineer shall not exceed 21 days and be construed as a complete check but will indicate only that the general method of construction and detailing is satisfactory and the Engineer's review or approval shall not relieve the Contractor of any of his responsibilities under the Contract.

SP-11 CONSTRUCTION PROGRAMME

11.1 GENERAL

The program of work submitted by the Contractor in accordance with Sub-Clause 14.1 “Programme to be submitted” of the General Conditions of the Contract shall be supplemented by submittal of a detailed schedule based on a computerized system, Primavera Enterprise for Engineering & Construction (P6) software or equivalent, covering all construction activities and furnished to the Engineer on paper and a soft copy on the following dates:

- **Construction Schedule:** Along with the Bid Documents.
- **Baseline Schedule:** within 14 days after receipt of Letter of Acceptance.
- **Revised Baseline Schedule:** After 3 months of the approval of Baseline Schedule and thereafter quarterly.
- **Recovery Schedule:** As and when required by the Engineer.

The Baseline Schedule, as approved by the Engineer in consultation with the Employer, will form an integral part of the Contract and will establish Contract completion dates for the various activities as mentioned in the Contract.

All schedules, project plans, progress updates and reports shall be in the form of readable computer printouts as well as in soft data format.

11.2 REQUIREMENTS & PROCEDURES

11.2.1 GENERAL REQUIREMENTS

- The narrative report accompanying the submittal shall describe the construction methods; plant and equipment proposed to be used and shall explain the expected production rates that are the basis of the scheduled durations of different activities.



- Start Date of the Project.
- Dates on which different site possession will be required.
- General administrative items like, Performance guarantee, Mobilization Advance Guarantee, Insurance etc.
- Unique Activity ID, description and duration.
- Activities' earliest start and finish dates, latest start and finish dates.
- All activities with zero float.
- Critical path with listing of all activities on the path.
- Dates for Employer furnished material or equipment if any.
- Required dates of Drawings from the Engineer.
- Dates for submittals like Method Statements etc.
- Work Breakdown Structure (WBS) and activity codes.
- Definition of calendars with non-working days or periods i.e. planned closures, flood seasons etc.
- Loading of key resources.
- Milestone dates.
- Network logic Diagram.
- List of constraints i.e. reason and type of constraint.
- Full S – Curve and Critical S – Curve (for critical activities only).
- Cost/ Resource Histograms.
- Planning assumptions and any external relationships
- Explain any discretionary dependencies.
- Appropriate quantity of direct resources (material, labour, equipment) should be allocated to all activities and showed in submitted construction schedule. Labour resource should be divided according to related trades (e.g. Mason, Operator, helper etc.) Contractor should make sure that no resource is being overallocated.
- BOQ amount should be loaded to each construction activity. Earned Value Management Reporting to be ensured accordingly.

11.2.2 CONSTRUCTION SCHEDULE

Construction Schedule will be submitted along with Bid Document and will be prepared in accordance with the Sub-Clause 11.2.1 hereof.

11.2.3 BASELINE SCHEDULE

Baseline Schedule to be submitted within 14 days after the letter of acceptance and will be prepared in accordance with the General Requirements mentioned under the Sub-clause 11.2.1 hereof. Start date will be the date of Notice to Commence.

11.2.4 REVISED BASELINE SCHEDULE

Besides, the General Requirements mentioned above, following will be the additional requirements for or quarterly Baseline Schedule:



- The revised narrative report depicting the actual situation and submittal describing the construction methods, plant and equipment proposed to be used and shall explain the expected production rates that are the basis of the revision of scheduled durations of different activities.
- Start Date will be taken as Notice to Proceed.
- Change in strategy to achieve the target Completion Date describing the additional resources if required, change in sequence of activities etc.
- Actual start and finish dates.
- Incorporation of effects of all approved changes that have occurred during last three months i.e. any change order which will affect the Completion Date of the Project. Any change in Completion Date for milestones shall be on the basis of prior extension if any granted by the Engineer.
- Comparison with the target Baseline Schedule. The narrative of any deviation from the Baseline.

11.2.5 RECOVERY SCHEDULE

The Recovery schedule will be submitted to the Engineer as and when required by the Engineer. If in the opinion of the Engineer any project milestone is likely to be missed, mitigation strategy for recovering the project will be submitted in the form of Recovery Schedule.

11.3 EXPLANATION & DEFINITIONS OF DIFFERENT TERMS

11.3.1 ACTIVITY CODES

Activity codes will include the following details:

- Type of Structure
- Area / RDs
- Work Restrictions (Closure etc.)
- Responsibility if identified, in the Contract to be shared with an agency other than the Contractor.

11.3.2 WORK BREAKDOWN STRUCTURE

The Work Breakdown Structure (WBS) shall divide the project scope into hierarchical, manageable, definable packages of work that will clearly indicate the scope and budget for the element. The WBS elements shall clearly reflect project's purpose and objectives, functional/ performance design criteria, project scope, technical performance requirements, and other technical attributes. The WBS to be submitted by the contractor will be based on the following parameters:

- The WBS submitted by the contractor will include and be a part of the high level WBS provided by the Engineer.
- Each WBS element will represent a single tangible deliverable.
- Each WBS element will represent an aggregation of all subordinate WBS elements listed immediately below it.



- Each subordinate WBS element must belong to only one single parent (or superior) WBS element.
- The deliverables should be logically decomposed to the level that represents how they will be produced (designed, purchased, sub-contracted, fabricated). The partitioning of the deliverables from higher levels within the WBS to lower levels must be logically related.
- Deliverables must be unique and distinct peers, and should be decomposed to the level of detail needed to plan and manage the work to obtain or create them.
- Deliverables should be clearly defined to eliminate duplication of effort within WBS elements, across organizations, or between individuals responsible for completing the work.
- Deliverables should be limited in size and definition for effective control – but not so small as to make cost of control excessive and not so large as to make the item unmanageable or the risk unacceptable.
- A coding scheme for WBS elements that clearly represents the hierarchical structure when viewed in text format will be used.

11.4 PROGRESS MEASURING SYSTEM

The Contractor will agree with the Engineer the Progress Measuring System after award of the Contract and before submission of Schedule.

11.4.1 ACTIVITY DEFINITION

Activity definition will involve identifying and documenting the specific activities that must be performed to produce the deliverables and sub deliverables identified in the Work Breakdown Structure (WBS). Within the context of the process of Activity Definition, decomposition will include identifying and documenting a list of activities that will be performed on the project. It will be organized as an extension to the WBS and will not include any activities that are not required as part of the project scope. The adequate level of detail must be carefully planned for the intent of the schedule based on the following parameters:

- The list of activities should lead to the identification and achievement of major deliverables of the project, including project management.
- Cost, resource and duration estimates will be loaded for the activities.
- Progress Measurement Criteria and Activity Weights Definition will be devised for progress reporting.
- Each Activity will be assigned a unique Activity ID based on a coding structure. The coding structure logic will also be indicated and communicated to the Engineer.

11.4.2 ACTIVITY SEQUENCING

Activity sequencing will involve identifying and documenting interactivity logical relationships. Activities will be sequenced accurately to support development of a realistic and achievable schedule. A project network diagram using Precedence Diagramming Method (PDM) will be utilized for showing dependencies between the activities.



11.4.3 ACTIVITY DURATION ESTIMATION

Activity durations will be estimated based on the work quantity, productivity and resources applied to the activity. Calendar dates will be utilized for all duration estimation with a minimum time unit of days. Calendars, constraints and assumptions will be documented and reported.

11.4.4 SCHEDULE DEVELOPMENT

The schedule will be developed to indicate the start and finish dates for project activities. The schedule developed will be iterated during the project according to the frequency of progress reporting. Critical Path Method (CPM) will be used for mathematical analysis of the schedule for calculation of Early and Late dates. As-Built construction schedules submitted by the Contractor periodically shall form the basis of evaluation of claim for Extension of Time, if any.

11.5 REPORTING REQUIREMENT

11.5.1 EXECUTIVE SUMMARY

Briefly set out the key issues together with recommendations for actions to be taken relating to the reporting period. The following topics may be covered:

- Cash flow utilization: actual versus planned.
- Physical progress: main progress activities during the month vs planned milestones.
- Main risks, challenges, and issues encountered during the month.
- Main mitigation, preventive, or corrective measures envisaged and person(s) responsible to carry out such measures.

11.5.2 CONTRACT STARTUP ACTIVITIES

- List all activities that should take place from the issuance of the letter of acceptance by the Employer to the selected bidder until 60 days after the commencement date, mentioning due date, actual date and responsibility.
- Mobilization Activities (planned date as per programme, actual date and remarks)

11.5.3 RISK MANAGEMENT

- Include risk identification, risk assessment, and risk mitigation in a comprehensive Risk Register.



11.5.4 PROGRAMME MONITORING

Including but not limited to the following

- Tabular form of progress – planned dates, actual dates, variances
Graphical form – line graph illustrating actual verses planned progress
- Pie chart – overall progress (%), time elapsed, time remaining
- One month look ahead table with target dates
- A short paragraph commenting on the critical path and the progress recorded to date.
- Description of all work carried out since the last report;
- Earned Value Analysis

11.5.5 CHANGE MANAGEMENT

Contractor will prepare Variation and Claim Register.

11.5.6 FINANCIAL MANAGEMENT

- Payment Schedule
- Evolution of Contract Price

11.5.7 ENVIRONMENTAL MANAGEMENT HEALTH & SAFETY

Contractor will provide Complete Compliance Report.

11.5.8 COMPLETION OF WORKS AND CONTRACT CLOSURE

Contractor will provide List of all activities executed at site with due date and actual date.

11.5.9 PHOTOGRAPHS TO ILLUSTRATE PROGRESS

The caption shall be typed on each photograph

- Title of Project
- Identification of subject shown
- Station points of camera and direction of view
- Date & Time (automatically displayed on the photos)
- Name of Employer / Engineer and Contractor

11.6 DRONE VIDEO PROGRESS DOCUMENTARY

The contractor shall document the entire project development from various positions and capture a complete video documentary on monthly basis with high resolution drone cameras. Properly identifying areas / segments of the project with a comprehensive progress video as required by the Engineer / Employer.

Drone Video Progress Documentary must be submitted on Monthly Basis as per satisfaction of The Engineer / Employer along with Monthly Progress Report on 8th Day of Each Month.

**11.7 TIME LAPSE & REALTIME WEB BASED PROGRESS CENTRE**

The contractor shall document the entire project development and project assets from various static angles by placing several Time-lapse high-resolution cameras and setup an un-interrupted web-based progress center

SP- 12 LAY OUT OF WORKS**12.1 REFERENCE POINTS, LINES AND LEVELS**

The Engineer will provide a reference line or lines in the field with accompanying points and/or bench-marks to enable the Contractor to establish survey control points for construction.

12.2 VERIFICATIONS

The Engineer may make checks as the work progresses to verify lines, levels and grades established by the Contractor and to determine the conformance of the work as it progresses with the requirements of the Specifications and the Drawings. Shall not relieve the Contractor of his responsibility to perform all work in accordance with the Drawings and Specifications and the lines, levels and grades given therein.

12.3 PRIMARY CONTROL POINTS

Based upon the Engineer's basic control, the Contractor shall provide his own primary control points, as needed for the Works, and shall preserve and maintain them until otherwise authorized.

The Contractor shall be responsible for maintaining all survey markers/monuments, and property corners. If any markers/monuments are disturbed or destroyed by the Contractor, the Contractor shall arrange, at his own cost, to retrace and replace them to the entire satisfaction of the Engineer. If a monument cannot be replaced in its original position, the Contractor shall install a witness corner. The Contractor shall complete and file monument reference cards on all monuments as per instructions of the Engineer.

12.4 CONTRACTOR'S SURVEYORS

The Contractor shall provide experienced construction surveyor/s with adequate experience in the construction surveys similar in nature as required by this Contract.

12.5 BASIC CONTROL MONUMENT

Based upon the Engineer's established basic control monuments the Contractor shall establish all lines and grades necessary to control the Works, and shall be responsible for all measurements that may be required for execution of the Works to the tolerance prescribed in Sub-Clause 12.7 below.

12.6 SURVEYS AND COMPUTATIONS

The Contractor shall perform such surveys and computations as are necessary to



determine quantities of work and for determining the alignment of the work performed or placed during each progress payment period, and shall also perform all surveys required by the Engineer to determine final quantities of work in place. The Engineer will determine final quantities based on original work done determined by the Contractor and verified by the Engineer.

The Contractor shall notify the Engineer at least 24 hours before performing a quantity survey unless specifically waived, quantity surveys shall be performed in the presence of and agreed by an authorized representative of the Engineer.

12.7 TOLERANCE

Degree of accuracy for the survey works shall satisfy the following specified tolerances:

- (a) Alignment of tangents and curves shall be within 0.1 foot for 1,000 feet i.e., an accuracy of 1:10,000.
- (b) Structure points shall be set within 0.01 foot accuracy from point to point, except where tighter tolerances are required.
- (c) Cross-section points shall be located within 0.10 foot, horizontally and 0.01 foot vertically.
- (d) Permissible closing error for a levelling line meant for establishing Temporary Bench Mark (TBMs) shall not exceed $0.045 \times \sqrt{M}$ foot, where M is in miles. The permissible closing error shall be duly adjusted.

12.8 MATERIAL AND EQUIPMENT

The Contractor shall provide all materials, equipment and labour required for work.

SP-13 STANDARDS AND SPECIFICATIONS

Except as otherwise provided by these Specifications or the Drawings all materials, equipment and fabrication and testing thereof shall conform to the latest applicable Standards and Specifications contained in the following list or to equivalent applicable Standards and Specifications. Copies of these Standards and Specifications may be purchased from the indicated agency, which publishes them:

- American Society for Testing and Materials (ASTM)
- IEEE (Institute of Electrical and Electronics Engineers) Standards (IEEE)
- NEC (National Electrical Code)
- British Standards (BS)
- Pakistan Standard Institution (PSI) Standards
- International Electrotechnical Commission (IEC)

Where relevant Standards and Codes of Practice now quote metric units only, these are to be interpreted as required to the nearest equivalent imperial (foot/pound) unit for the purposes of this Contract.

All materials and workmanship not fully specified herein or covered by an approved Standard shall be of such a kind as is used in first class work and suitable to the



climate in the Project Area.

If the Contractor, at any time and for any reason, wishes to deviate from the above standards or desires to use material or equipment not covered by the above standards, he shall state the exact nature of the changes, the reason for making the change and shall submit complete specifications of the materials and equipment to the Engineer for approval.

SP- 14 ACCESS TO SITE

14.1 MAINTENANCE OF ACCESS AND HAUL ROUTES

The Contractor shall be responsible for maintenance of access and haul routes to Site of Works till completion of the Works. The Contractor shall make his own investigations of the condition of available public or private roads and of clearances, restrictions, bridge load limits and other limitations that affect or may affect transportation and ingress and egress at the job sites. The repair, maintenance and reinstatement of access routes, roadways, drain and canal banks if damaged during operation shall be the responsibility of the Contractor without any additional cost to the Employer.

14.2 RESTORATION OF SITE

On completion of the Works, the Site shall be restored by the Contractor to its original conditions as far as practicable and left in tidy condition.

SP- 15 FACILITIES TO BE PROVIDED BY THE CONTRACTOR AT SITE

15.1 CONTRACTOR'S CAMPS

The Contractor shall arrange Camp facilities in the nearby area of the Project.

15.2 TEMPORARY SANITARY FACILITIES

- (a) The Contractor shall provide adequate temporary sanitary conveniences for the use of his employees and persons engaged on the work, including the Engineer and his employees. He shall ensure that his employees and labour make proper use of the latrines and do not foul the Site.
- (b) In addition to toilet facilities, suitable and adequate washing facilities shall be provided.
- (c) Sanitary facilities shall be located as directed or approved by the Engineer and shall be maintained in a clean and sanitary condition during the entire course of the work.
- (d) The septic tank and/or temporary holding tank(s) shall be kept pumped out at such intervals that the tank(s) will not overflow and contaminate the ground, flowing streams or surface drainage.
- (e) On completion of the Works, sanitary facilities shall be properly disinfected and all evidence of same including temporary buried tanks and foundations



removed from the Site.

15.3 MEDICAL FACILITIES

The Contractor shall arrange provision of adequate medical facilities for his employees.

Adequately equipped dispensary/ies with qualified and experienced staff shall be provided by the Contractor at his camps. In addition, suitably equipped first aid stations manned by trained staff shall be provided at strategic locations, to administer first aid treatment at all times free of charge to all persons on the Site, including personnel of the Engineer and the Employer. The nature, number and location of facilities furnished and the Contractor's staff for administering first-aid treatment shall meet the requirements of the Health Services of the Government of Pakistan.

15.4 OPERATION AND MAINTENANCE OF THE CAMPS AND FACILITIES

For the purpose of operation and maintenance of the camps and facilities provided as above, the Contractor shall comply with all applicable provisions of the Pakistani Labour Laws and specifically to the following requirements:

- (a) Camp areas shall be kept dry and free from dense vegetation. Measures shall be taken to control dust within the camp area, by water or oil spraying or other approved means.
- (b) Any ponded water around a camp shall be sprayed weekly with oil or other approved anti-malaria liquid.
- (c) The Contractor shall provide garbage collection and disposal services for his construction camps and the Engineer's office. Disposal shall be by burial (landfill) and/or incineration. Disposal area shall be located a sufficient distance away and downwind from camp facilities and offices so as not to create objectionable odours or health hazards. Equipment, methods of collection and disposal and location of disposal areas shall be submitted to the Engineer for approval.
- (d) The interior walls and ceilings of buildings shall be lime washed or painted. The whole of the open spaces around the buildings shall be swept each day and all rubbish removed. The living areas shall be suitable for the climatic conditions. Roof height shall not be less than 10.5 ft. and adequate number of ceiling fans shall be provided.
- (e) Adequate sanitary conveniences, including washing and bathing places shall be maintained at each of the camps. All sanitary fixtures, receptacles, toilet rooms, lavatories and wash rooms shall be cleaned and disinfected at least once every day.

15.5 DRAINAGE

The ground around the buildings shall be graded to slope away from building



perimeters so as to provide adequate drainage and shall be thoroughly compacted.

Excavated material shall be disposed of by filling in low areas or as otherwise directed by the Engineer.

15.6 WATER SUPPLY

The Contractor shall arrange for the water supply for his staff residences, labour camps, site offices, work yards, workshops, and various camp facilities. Construction of pumps, storage tanks, overhead tank, distribution system, and their proper running and maintenance shall be his responsibility. Water shall be supplied to the camps 24 hours a day. Adequate supply of water, cooled in summer, shall be ensured in camps and sites of work. Water samples shall be tested periodically to ensure that it is fit for human consumption.

15.7 ELECTRICITY SUPPLY

The Contractor shall provide electricity required for the Works including labour camps, staff residences, offices including the Engineer's Site office and various camp facilities. The Contractor shall also provide sufficient standby electricity supply arrangements for his needs.

15.8 UTILITY LINES

The Contractor Shall conduct his operations, make necessary arrangements, take suitable precautions and perform all required work incidental to the protection of and avoidance of interference with power, telephone, water and other utilities within the areas of his operations in connection with the Contract. No separate payment shall be made for such incidental work. In case the utility lines are required to be relocated the Contractor shall arrange their relocation with the concerned departments and organizations.

15.9 HANDING OVER / REMOVAL AFTER COMPLETION

Upon completion of the Works, these facilities with regard to Contractor's camps, labour and staff accommodation, site office, other installations and temporary buildings constructed and all facilities provided by the Contractor under this Clause shall be handed over to the Employer or if the Employer desires, the Contractor shall remove these facilities and the Site cleared and reinstated to the satisfaction of the Engineer. Nevertheless, in case of private land, upon completion of the Works, the Employer shall be responsible for maintenance of area together with bearing of cost, if any.

15.10 MEASUREMENT AND PAYMENT

No separate payment will be made for the work included under the Clause SP-15; the cost thereof is deemed to be included in the rates and prices of other items entered in the Bill of Quantities.

**SP- 16 PROVISION OF FACILITIES FOR THE ENGINEER / EMPLOYER****16.1 SITE OFFICE FOR THE EMPLOYER / ENGINEER**

The Contractor shall provide within 28 days after signing of Contract:

- a) Contractor's Office, Workshop, Material Testing Laboratory and Work Areas (areas required and proposed layout, type of construction of building, etc.)
- b) The Employer (02 Nos. containers), The Engineer and The Engineer's Representative's office (01 Nos. containers) duly approved by The Engineer at suitable location along the route considering convenience and ease of access with the provision of following facilities / services:
 - i. The office shall accommodate seating for at least 08 Officers / Personnel, etc.
 - ii. Furnished with furniture, air-conditioning, heating, power, etc.
 - iii. Communication media including telephone cards, fax, internet devices, etc. (01 Nos.)
 - iv. Latest Model of Laptop 01 no. for Employer and printing & photocopy facilities (3-in-1 printers) (01 no. for Client)
 - v. Washroom / toilet facility.

16.2 TRANSPORTATION

The Contractor is required to furnish 4 Nos. brand new Toyota Hilux Revo V 2.8 Automatic Diesel, 2 Nos. Toyota Yaris Sedan ATIV X CVT 1.5 (Automatic) vehicles inclusive of tracking system with driver and 4 Nos. Honda CG 125 Bikes for the field staff of the Employer and Employer's Representative for site inspection, within twenty-eight (28) days of signing the Contract. The vehicles shall be registered in the name of RUDA.

Contractor shall be responsible for POL (up to 300L per vehicle per month for four wheels and up to 100L per bike per month) and maintenance of the vehicles till completion of Defects Notification Period.

No separate claim of the Contractor shall be admissible for these facilities and shall be deemed to have been covered in the Contractor's overhead & profit.

Upon completion of the Contract, the above-mentioned vehicles furnished by the Contractor shall become property of the Employer (RUDA).

16.3 MEASUREMENT AND PAYMENT

No separate payment will be made for the facilities provided under the Clause SP-16; the cost thereof is deemed to be included in the rates and prices of other items entered in the Bill of Quantities.

**SP- 17 SITE FACILITIES TO BE PROVIDED BY THE EMPLOYER****17.1 GENERAL**

Without prejudice to the generality of the various clauses of the Contract and except for the facilities referred to hereinafter, particular attention is drawn to the obligations of the Contractor to make his own arrangements for providing, maintenance and furnishing of labour camps, staff residences, offices, workshops, stores watching and guarding thereof.

The Contractor shall submit his written demand of his requirements of land for his Site Facilities as herein specified, at least 28 days in advance.

SP- 18 SAFETY MEASURES AT CONSTRUCTION SITE

- a) Pursuant to the provisions of Sub-Clause, for Safety Measures the Contractor shall observe high standards of safety for men and machines at all times and with regard to safety.
- b) The Contractor shall take all possible measures to protect his personnel from harm. In case of any casualty or injury to any person due to the Contractor's operations, the Contractor shall ensure quality medical treatment and payment of due compensation.
- c) The Contractor shall not permit casual observers to come close to the sites where excavation and other hazardous operations are being performed.

SP- 19 ENVIRONMENTAL PROTECTION

The Contractor shall exercise care to protect the natural landscape and shall conduct his construction operations so as to prevent any unnecessary destruction, scarring or defacing of the natural surroundings in the vicinity of the Works. Except where clearing is required for the Permanent Works, approved construction roads and the Temporary Works, and for excavation operations, all trees and native vegetation shall be preserved and shall be protected from damage which may be caused by the Contractor's construction operations and equipment. On completion of the Works, all work areas shall be smoothed and graded in a manner to conform to the natural appearance of the landscape. Where unnecessary destruction, scarring, damage or defacing may occur as a result of the Contractor's operations, it shall be repaired, replanted, or otherwise corrected as directed by the Engineer at no additional cost to the Employer.

SP-20 PAYMENT FOR WORK REQUIRED BY SPECIAL PROVISIONS

No separate payment shall be made for work required / stated in these Special Provisions.



SPECIFICATIONS
PART B: TECHNICAL PROVISIONS

**Construction of Bridge to Jahangir Tomb Over Ravi River****Bidding Documents**
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1 ENVIRONMENTAL MANAGEMENT PLAN

1.1 GENERAL

Environmental Management Plan (EMP) is a tool for the implementation of all the suggested measures to make the project environmentally sustainable. It provides an overall approach for managing and monitoring the environmental, ecological and socio-economic issues of the proposed Project as well as health and safety aspects, and describes the institutional framework and reporting mechanism to implement EMP for the Project. The cost for the implementation of this EMP will be solely bear by the Contractor.

1.2 EMP COMPONENTS

The EMP comprises following main components:

- EMP Objectives;
- Scope of the EMP;
- Policy, Legal and Administrative Framework;
- Inclusion of EMP in Bidding/Contract Documents;
- Institutional Arrangements;
- Environmental Mitigation and Management Matrix;
- Environmental Monitoring Plan;
- Planning for EMP Implementation;
- Occupational Health and Safety Provisions for Contractors;
- Capacity Building/Strengthening;
- Communication & Documentation;
- Environmental, Social, Health and Safety Management Plans;
- Change Management Plan
- Tree Plantation Plan;
- Chance Find Procedure;
- Codes of Practices;
- Audits and Annual Review of EMP;
- Non-Compliance of EMP; and
- Budget for Implementation of EMP.

1.3 EMP OBJECTIVES

The main objectives of the EMP are:

- Provide project impacts along with the proposed mitigation measures, and a corresponding implementation phase for the proposed mitigation measures;
- To ensure that all necessary corrective actions are carried out in time to counter any adverse environmental and social impacts;



- To ensure the regular monitoring of those factors which may affect the safety of the environment, workers and community under a systematic monitoring approach;
- Define the roles and responsibilities of the Project Proponent (RUDA), Supervision Consultant (SC) and Construction Contractor (CC) in the existing setup of proponent in order to effectively communicate environmental and social issues among them;
- Provide a procedure for timely action in the face of unanticipated situation;
- Identify training requirements at various levels including RUDA, SC and CC;
- Provide a monitoring mechanism in the form of an environmental and social monitoring plan, which includes monitoring parameters, monitoring frequency to ensure that all the mitigation measures are completely and effectively implemented;
- Identify the resources required to implement the EMP and outline the corresponding financing arrangements;
- Define the requirements necessary for documenting compliance with EMP and communicating it to all the concerned regulatory agencies; and
- Provide other plans considering the project specific requirements.

1.4 SCOPE OF THE EMP

The scope of the EMP includes Construction of Bridge to Jahangir Tomb Over Ravi River. All the activities performed during the implementation phases will be controlled and monitored according to this EMP.

1.5 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

The applicable policies, legislation, acts and guidelines are discussed in detail in Chapter 2 of Environmental Impact Assessment (EIA) Report. However, following is the list of the applicable policies, laws, regulations and guidelines related to the proposed Package:

1.5.1 National and Provincial Requirements:

- National Conservation Strategy (NCS), 1992
- National Environmental Policy (NEP), 2005
- National Climate Change Policy, 2012
- National Drinking Water Policy, 2009
- National Water Policy 2018
- National Forest Policy, 2001
- Pakistan Labour Policy, 2010
- National Resettlement Policy, 2002
- National Disaster Risk Reduction Policy, 2013
- National Action Plan for Covid-19 Pakistan
- Punjab Environmental Protection Act, 1997 (as Amended up to 2017)
- Punjab Environmental Protection Agency, (Review of IEE and EIA) Regulations, 2022
- Punjab Environmental Quality Standards (PEQS), 2016
- Guidelines for the Preparation and Review of Environmental Reports, 1997
- Guidelines for Environmental Assessment
- Ravi Urban Development Authority Act 2020



- Pakistan Climate Change Act, 2017
- National Clean Air Act, 2000
- Land Acquisition Act (LAA), 1894 Including Later Amendments
- Punjab Wildlife Act, 1974
- Punjab Plantation and Maintenance of Trees Act, 1974
- Pakistan Antiquities Act 1975 & Punjab Antiquities Amendment Act 2012
- The Punjab Special Premises (Preservation), Ordinance, 1985
- Pakistan Penal Code, 1860
- Labour Laws as part of Constitution of Pakistan 1973
- Punjab Municipal Water Act, 2014
- The Punjab Water Act, 2019
- Punjab Hazardous Substances Rules 2019
- Punjab Environmental Protection (Motor Vehicles) Rules, 2013
- The Punjab Occupational Safety And Health Act, 2019
- Punjab Restriction on Employment of Children Act, 2016
- Punjab Protection of Women against Violence Act, 2016
- Electricity Act, 1910
- Cutting of Trees (Prohibition) Act, 1975
- Punjab Forest Act (Amended), 2016
- The Punjab Protected Areas Act, 2020
- The Punjab Heritage Foundation Act, 2005
- The Punjab Emergency Services Act, 2006
- National Disaster Management Act, 2010
- Seismic Building Code of Pakistan 2007 & 2021

1.5.2 International Convention, Protocols and Obligations:

- UNESCO Convention on the Protection of the World's Cultural and Natural Heritage, 1972
- The Rio Declaration, 1992
- Kyoto Protocol, 1992
- Convention on Biological Diversity, 1994
- UN Convention to Combat Desertification (UNCCD), 1994
- Stockholm Convention on Persistent Organic Pollutants (POPs), 2004
- Paris Agreement, 2015
- Millennium Development Goals (MDGs)

1.6 INCLUSION OF EMP IN BIDDING/ CONTRACT DOCUMENTS

The EIA including EMP will be included in the bidding/contract documents and its implementation will be a contractual binding for the contractors.



1.7 INSTITUTIONAL ARRANGEMENTS

The institutional requirements for the implementation of the proposed Project are provided in below sections.

1.7.1 Institutional Arrangements for Implementation of EMP

The key players involved during implementation phase of the proposed Project RUDA as employer/proponent (including its environmental and social specialists), Environmental Protection Department (EPD) Punjab, SC, Monitoring and Evaluation Consultant (MEC) and the Contractor. The roles and responsibilities of these organizations are outlined below.

The following staff will be involved in the implementation of EMP:

- RUDA - Proponent/Employer (including Environmental and Social Staff);
- MEC;
- SC Environmental and Social Staff; and
- Contractor's Environmental, Social, Health and Safety Staff.

The employer RUDA will make Contractor bond through contract documents to implement the EIA including EMP and other terms and conditions of the Environmental Approval/NOC issued by the EP&CCD Punjab. The whole EMP will be included as a clause of the contract documents. Construction camps will be established after necessary approvals and submission of Site-Specific EMPs to be developed in the light of the relevant agency requirements, before commencement of new works.

The proposed organizational structure for the implementation of the EMP is presented in **Figure 1.1**.

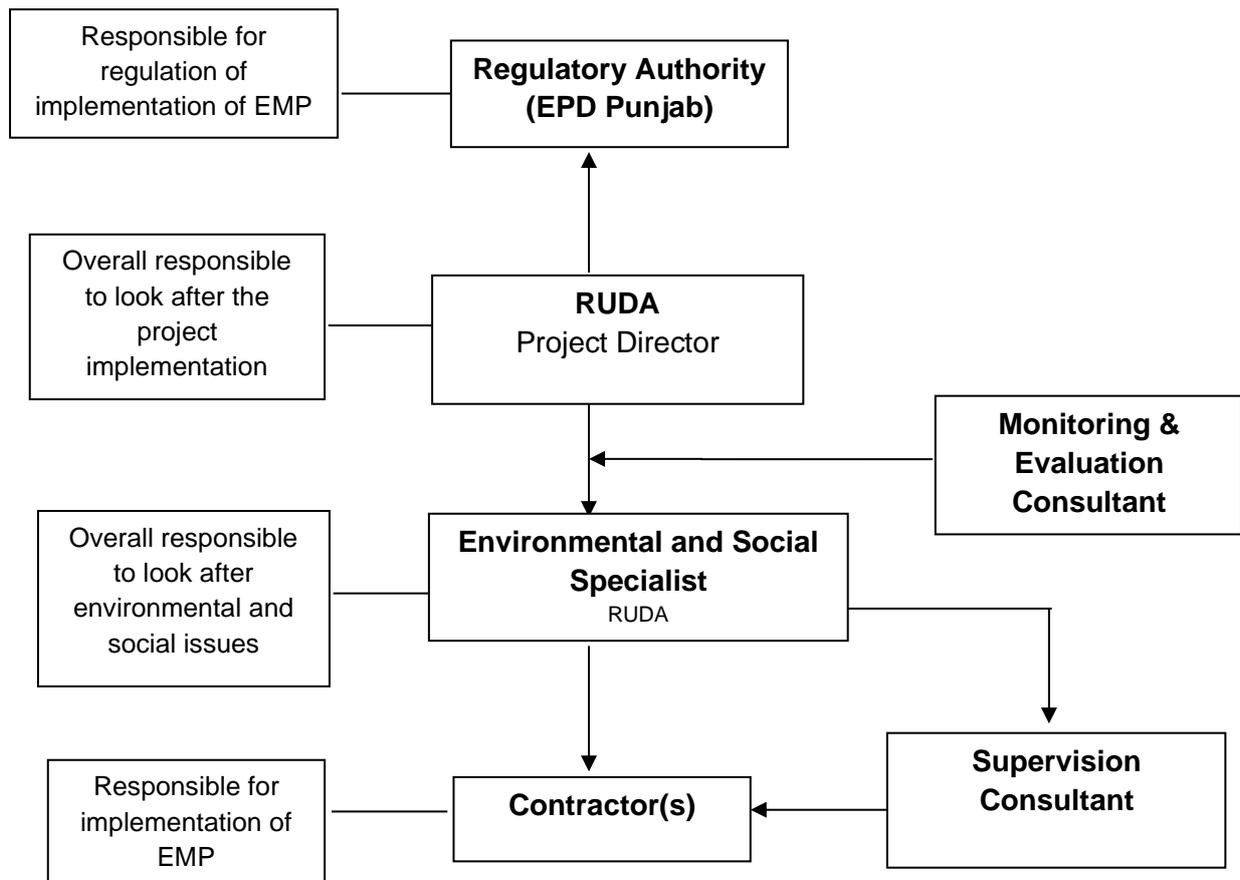


Figure 1.1: Institutional Arrangement for Implementation of EMP

RUDA will monitor and coordinate all project implementation activities. The Project Director, will be responsible for all aspects of project implementation including financial management, procurement, recruitment of staff, consultants and contractors, and overseeing the implementation of EMP.

1.7.2 Roles and Responsibilities

Environmental and Social Specialists- RUDA

Following staff will be hired or engaged under RUDA, for the implementation of EMP:

- Environment Specialist
- Social Development Specialist

Overall responsibilities include:

- To ensure implementation of mitigation measures proposed in EMP during the construction and operational phase of the Package;
- To organize monitoring of ambient air quality, water and noise. In case, the noise and emission levels exceed the acceptable levels; a penalty or ban must be enforced;
- To develop operational guidelines and implementation schedule;



- Receiving complaints from nearby community and assisting the local authority including liaison with EPD Punjab;
- Ensuring availability of committed human resources and sufficient budget for successful implementation of EMP;
- To ensure that the proposed project is implemented in an environment friendly manner,
- Maintaining interface with the other lined departments/stakeholders; and
- Reporting to the EPD Punjab on status of EMP implementation.

Supervision Consultant

Overall responsibilities of Supervision Consultant include:

- Supervising, facilitating and coordinating implementation of environmental and social plans including EMP;
- Ensuring that contractors follow EPD Punjab regulations, and other requirements mentioned in the EMP;
- Identifying any issues of non-compliance and maintain a record;
- Suggesting mechanisms to link contractor performance in relation to the EMP to the timing of financial payments, incentives or penalties;
- Interacting with stakeholders for their concerns about the construction activities.
- Assisting Project Director in addressing and resolving environment-related complaints and grievances;
- Identifying and preparing environmental training materials and conducting environmental trainings; and
- Reviewing EMP and revising it if required.

Contractor(s)

Contractor(s) are also required to appoint the following staff for the implementation of EMP in the field, particularly the mitigation measures.

- Environment Specialist
- Social Development Specialist
- Health and Safety Specialist

The contractor(s) will develop site specific management Plans addressing towards health, safety and environment and social issues including gender and get them approved by the RUDA. The contractor will also be responsible training its staff in the environmental/social and gender issues before the commencement of the construction works in consultation with RUDA. The construction contract will have appropriate clauses to bind the contractor for the above obligations.

Monitoring and Evaluation Consultant (MEC)

MEC will be recruited by RUDA to carry out independent monitoring of implementation of EMP. The MEC will have environmental, and social experts and shall carryout third party monitoring



of the project. MEC will also carry out regular observation of implementation of EMP carried out by the contractor.

1.8 ENVIRONMENTAL MITIGATION AND MANAGEMENT MATRIX

The impacts, mitigation measures, monitoring indicators, frequency and responsibility has been documented in EMP and given in **Table 1.1**.

Table 1-1: ENVIRONMENTAL MITIGATION AND MANAGEMENT MATRIX

Sr. No.	Impacts	Mitigation Measure	Performance Monitoring Indicators	Responsibility	
				Implementation	Monitoring
Construction Phase					
1.	Soil Erosion Due to the proposed construction activities such as construction of barrage and river channelization, soil erosion and contamination may occur. Soil erosion may occur on River Ravi and at contractors' camps as a result of uncontrolled run-off from equipment washing yards and excavation of earth/cutting operations.	Use of stone pitching or riprap will be provided in the design at appropriate places especially around barrage and over head structures.	Visual observation and photographic record Waste Management plan implementation	CC	Proponent
2.	Soil Contamination The soil contamination occurs at all construction stages. Land may be contaminated due to the spillage of chemicals, fuels, solvents, oils, paints, concrete, solid	The Contractors will be required to instruct and train their workforce in the storage handling and management of materials and chemicals that can potentially cause soil contamination	Visual observation and photographic record Waste Management plan implementation	CC	Proponent



Sr. No.	Impacts	Mitigation Measure	Performance Monitoring Indicators	Responsibility	
				Implementation	Monitoring
	waste generated at campsites etc. This normally happens when these materials are transported in open or loosely capped containers. Various types of machinery will be used at the construction sites.				
3.	<p>Borrow / Open Pits</p> <p>Borrow/ open pits and associated excavation activities may result in land disputes, soil erosion, loss of potential cropland, loss of vegetation and landscape degradation. Borrow/ Open pits may also become potential sources of mosquito breeding and may prove hazardous to humans, livestock and wildlife. This will also degrade hygienic condition of the Project Area</p>	Necessary permits will be obtained for any borrow pits from the competent authorities; In borrow pits, the depth of the pits will be regulated so that the sides of the excavation will have a slope not steeper than 1: 4	Visual observation and photographic record Waste Management plan implementation	CC	Proponent
4.	<p>Air Quality and Dust</p> <p>Construction of the project building will affect air quality. Air</p>	All vehicles, machinery, equipment and generators used during construction activities should be kept in good	Visual observation and photographic record Waste	CC	Proponent



Sr. No.	Impacts	Mitigation Measure	Performance Monitoring Indicators	Responsibility	
				Implementation	Monitoring
	sensitive receptors (ASR) will be adversely affected by the construction activities. The air quality of the project area will be affected by the exhaust emissions (NO ₂ , SO ₂ , CO and PM ₁₀) produced from the construction machinery and equipment and fugitive dust. All these including PM ₁₀ are considered as pollution indicators	working condition and be properly tuned and maintained in order to minimize the exhaust emissions.			
5.	Noise/ Vibration The noise and vibration will be produced due to the operation of construction machinery and equipment. Sources of noise and vibration during construction are heavy machinery such as bulldozers, excavators, stabilizers, concrete mixing plant, pneumatic drills, stone crushers, asphalt plants and other equipment's. The above machinery is expected to generate noise levels that would	Selection of up-to-date and well maintained construction equipment with reduced noise levels ensured by suitable in-built damping techniques or appropriate muffling devices.	Noise monitoring and visual checks.	CC	Proponent



Sr. No.	Impacts	Mitigation Measure	Performance Monitoring Indicators	Responsibility	
				Implementation	Monitoring
	be severe in the project area.				
6.	<p>Surface and groundwater contamination</p> <p>The surface water including River Ravi may get contaminated due to the surface runoff during construction phase. Construction activities may result in debris entering water body resulting in sedimentation. Storage and transport of construction material may also result in spills of chemical and contamination of water bodies</p>	Construction camps will be established in areas with adequate natural drainage channels in order to facilitate the flow of the treated effluents after ensuring that PEQS are met.	Water Sampling and Testing from EPD Approved Laboratory. Visual Checks.	CC	Proponent
7.	<p>Traffic Management</p> <p>The proposed Project area is approached through various major roads (Ravi road, Grand Trunk road (N-5), Bund road, Ring road and Sialkot-Lahore Motorway. These roads serve as main approach roads to the proposed Project Area and due to the</p>	Movement of vehicles carrying construction materials and equipment/machinery will be restricted during the daytime Traffic Management Plan will be implemented to avoid traffic accidents, jams/public inconvenience.	Vehicle maintenance record Training record Implementation of TMP Regular visual observations	CC	Proponent



Sr. No.	Impacts	Mitigation Measure	Performance Monitoring Indicators	Responsibility	
				Implementation	Monitoring
	<p>proposed construction activities and movement of heavy Project vehicles for construction material supply; traffic problems may arise for the commuters and transporters travelling to the project area. The problems will include traffic jams and inconvenience to the public passing through the Project Area</p>				
8.	<p>Resource Conservation</p> <p>Resources involved in the construction of proposed Project would include water, fuel and construction materials. Excessive consumption of these resources by the construction staff may stress the resources in the project area and in certain cases may disturb the existing supplies.</p>	<p>A good camp design and an efficient worksite management plan can help the contractor to reduce the water demand, wastewater and solid waste volumes to the lowest levels.</p>	<p>Work site management plan Resource conservation plan and its implementation. Regular visual observations</p>	CC	Proponent
9.	<p>Visual Impact and Aesthetics</p> <p>Possible visual impacts during</p>	<p>The area demarcated for proposed project should be fenced and all the</p>	<p>Regular visual observations</p>	CC	Proponent



Sr. No.	Impacts	Mitigation Measure	Performance Monitoring Indicators	Responsibility	
				Implementation	Monitoring
	construction phase activities are likely to arise from fugitive dust generated from site preparation, on-site storage of construction material and storage of construction debris, physical presence and operation of labor camp, etc.	construction activities should be restricted within the demarcated site;			
10.	<p>Construction Camps/Camp Sites</p> <p>Due to the construction camps, loss of vegetation and dis-satisfaction of rehabilitation measures during and after completion of construction phase may occur. These impacts may include waste, soil pollution, groundwater pollution, dust, etc</p>	Operate equipment in a manner sympathetic to the ambient noise environment. Do not leave equipment idling unnecessary.	Visual observation and photographic record sanitation plan for the construction camp implementation	CC	Proponent
11.	<p>Wastewater Generation at Construction Camps</p> <p>Wastewater will be generated at the construction camps by the workers. If the generated</p>	Domestic and chemical effluents from the construction camp will be disposed by the development of on-site sanitation systems i.e., septic tanks.	Visual observation Regular environmental monitoring, sampling and testing reports Waste Management plan	CC	Proponent



Sr. No.	Impacts	Mitigation Measure	Performance Monitoring Indicators	Responsibility	
				Implementation	Monitoring
	wastewater is not properly treated or disposed of, this may contaminate the surface water sources such as river Ravi, water channels, etc. apart from soil contamination. The wastewater generation is estimated to be 6,400 liters/day for 200 construction workers during construction phase of the proposed Project.		implementation		
12.	Solid Waste Generation at Construction Camps Considering the laborers (about 200 in numbers) residing in the construction camp and the locally available labour, an average solid waste generation rate of 0.612 kg/capita/day ¹ is adopted for the estimation of solid waste generation. Based on this assumption, a total of about	All the solid waste from the camps will be properly collected at source by placing containers and disposed of through proper solid waste management system.	Visual observation and photographic record. Waste Management plan implementation	CC	Proponent

¹ Climate and Clean Air Coalition Municipal Solid Waste Initiative Report, 2021

https://www.waste.ccacoalition.org/sites/default/files/files/lahore_city_profile.pdf

(Lahore: 0.612 kg/capita/day)



Sr. No.	Impacts	Mitigation Measure	Performance Monitoring Indicators	Responsibility	
				Implementation	Monitoring
	122.4 kg/day of solid waste will be generated from construction camps on daily basis.				
13.	<p>Waste water generation at construction site</p> <p>The construction waste will include wastewater, oil spillage from machinery and solid waste (damaged or spoiled materials, temporary and expendable construction materials etc.). The handling and storage of oil and other hazardous waste will be a source of environmental pollution during the excavation, foundation, leveling, carpeting and pavement activities. The quantification of construction material waste is not available but it is anticipated that less amount of such waste will be generated along the route length.</p>	The site will be restored back to its original conditions after construction completion as per agreement with land owner of camp site.	Visual Observation and Environmental Monitoring, Sampling and Testing through an EPD approved laboratory	CC	Proponent
14.	Emergency Response to Natural and Man-made Disasters	Emergency Response Plan will be implemented in close consultation with the District	Emergency Response Plan implementation.	CC	Proponent



Sr. No.	Impacts	Mitigation Measure	Performance Monitoring Indicators	Responsibility	
				Implementation	Monitoring
	Construction of the proposed project may encounter emergency situations. Natural Disasters such as earthquakes & flooding and other disasters triggered by humans/human error such as act of terror, fire etc. may occur, and must be considered to avoid or minimize their impacts.	Rescue Service, fire-fighting department, bomb disposal squad and paramedics. In addition, training of the staff/employees regarding the emergency procedures/plans should be regularly conducted.			
15.	<p>Climate Change and Green House Gas Abatement</p> <p>The main sources of Greenhouse Gases (CO₂, CH₄, NO_x etc.) during the construction activities of the proposed Project will include both mobile and stationary sources. The mobile sources will be the construction and transportation vehicles while the stationary source will be the batching and asphalt plants. Emission of greenhouse gases cause global warming</p>	Integration of careful planning on construction equipment activities with appropriate equipment selection could contribute to the reduction of carbon gas emissions as well as savings of construction cost	Regular maintenance of construction equipment and machinery. Visual observations and Environmental Monitoring, Sampling and Testing through an EPD approved laboratory.	CC	Proponent



Sr. No.	Impacts	Mitigation Measure	Performance Monitoring Indicators	Responsibility	
				Implementation	Monitoring
	and other climatic changes on regional and global scale.				
16.	<p>Flora</p> <p>The project may involve destruction of vegetation cover on construction areas..</p>	<p>Construction of Bridge may not be involved tree cutting if any tree damage dur to construction activities, than new tree at 1:10 ration will be planted against the damaged tree. Incorporate technical design measures to minimize removal of trees, if possible; Cutting of trees and disturbance shall be avoided, as far as possible so, that negative effects on the process of natural regeneration of species are minimized and possible alternate route must be considered for proposed road and bridge in which minimum ecological and environmental losses are expected.</p>	<p>Tree compensation record Visual observations Regular monitoring, audit and checks</p>	CC	Proponent
17.	<p>Fauna</p> <p>During construction phase the existing population of mammals and reptiles of the construction areas will be</p>	<p>Care shall be taken during construction activities for avoiding purposely or chance killing of animals; If any wild species and habitat is found during construction, it must be dealt</p>	<p>Departmental consultation record Visual observations Regular monitoring, audit and checks</p>	CC	Proponent



Sr. No.	Impacts	Mitigation Measure	Performance Monitoring Indicators	Responsibility	
				Implementation	Monitoring
	<p>affected due to disturbance arising from construction activities involving excavation, movement of machinery and vehicular traffic, movement of labor, camping, etc. The existing animals will leave the directly affected areas due to construction activities and human intervention. Some animals particularly reptiles may get killed during the earthworks operations. Moreover, the movements of the mammals and reptiles will be restricted during the construction phase.</p>	<p>Carefully and local wildlife department officials should be informed;</p>			
18.	<p>Aquatic Ecology</p> <p>Availability of the suitable approach is must for any project before its start. Presently there are no proper roads in the bed of river for the transport of heavy machinery to the site. So the construction of the</p>	<p>Proper facilities for regular monitoring of fish stock and water quality will be provided in shape of a trained team equipped with necessary equipment.</p>	<p>Departmental consultation record Visual observations Regular monitoring, audit and checks</p>	CC	Proponent



Sr. No.	Impacts	Mitigation Measure	Performance Monitoring Indicators	Responsibility	
				Implementation	Monitoring
	<p>approach roads will cause noise and dust pollution in the area. These activities will disturb the water quality and also aquatic life therein.</p>				
19.	<p>Occupational Health and Safety</p> <p>Occurrence of accidents / incidents and other natural emergencies during the construction stage is a common phenomenon and workers as well as locals will be more prone to serious accidents.</p> <p>Other physical hazards are exposure to weather elements, noise, work in confined spaces, trenching, contact with overhead power lines, falls from machinery or structures, and risk of falling objects).</p>	<p>Safety precautions for the construction workers, Training of workers in construction safety procedures and use of Personnel Protective Equipment (PPE) will mitigate this impact.</p>	<p>Implementation of OHS Plan Use of PPEs Training Records Work permits Implementation of Emergency response plan and disaster management plan in case of natural disaster occurrence</p>	CC	Proponent
20.	<p>Community Health and Safety</p> <p>Community health and safety issues</p>	<p>The World Bank/IFC EHS Guidelines, 2007, defines community health and safety in terms that</p>	<p>Implementation of HSE Plan Use of PPEs Community concerns record</p>	CC	Proponent



Sr. No.	Impacts	Mitigation Measure	Performance Monitoring Indicators	Responsibility	
				Implementation	Monitoring
	may include dust, noise, and vibration from construction vehicle transit, and communicable disease associated with the influx of temporary construction labor.	guarantee as-built infrastructure conforms to acceptable standards (structural safety, flood and fire risk), water supply sources are of suitable potable quality, emergency response planning is in place for built environments, traffic safety provisions are enforced alongside transport hazard assessment and mitigation, and disease prevention measures are taken.	Medical reports of worker		

1.9 ENVIRONMENTAL MONITORING PLAN

Environmental monitoring provides timely and useful information to the project management and implementation agencies. Conceptually, “monitoring” means to check and balance, on a regular basis, the status of the project activities and realization of various developmental targets during implementation phase. It helps in timely identification/analysis and removal of the bottlenecks and expedites actions. Certain parameters (physical, ecological and social) are selected and quantitative analysis is carried out. The results of analysis are compared with the guidelines; standards and pre-project condition to investigate whether the EMP and its implementation are effective for the mitigation of impacts or not. The objectives of environmental and social monitoring plan during the construction phase will be as follows:

- Monitor the actual project impacts on physical, ecological and socio-economic receptors;
- Recommend mitigation measures for any unforeseen impact or where the impact level exceeds the anticipated level in the EIA;
- Ensure compliance with legal and community obligations including safety during construction phase;
- Ensure the safe disposal of excess construction materials, solid waste, water, wastewater and gaseous emissions;
- Appraise the adequacy of the EIA with respect to the project’s predicted long-term impacts on the area’s physical, ecological and socio-economic environment;



- Evaluate the effectiveness of the mitigation measures proposed in the EMP and recommend improvements in EMP, if required; and
- Compile periodic incidents/accidents data to support analyses that will help to minimize future risks.

1.9.1 Monitoring Mechanism

Safeguard monitoring is an essential tool for assessing whether the adopted environmental and social management measures are meeting their stated objectives. Two, complementary methodology shall be applied to monitor the proposed actions under the EMP:

- Compliance monitoring: To check the compliance of actions proposed by the EMP by visual observation, photographic documentation and the use of checklists etc.; and
- Effects monitoring: To monitor the consequences of program/activities on the biophysical and social environment; as applicable, the effects are repeatedly measured by applying selected indicators.

Monitoring will be carried out to ensure that the mitigation plans are regularly and effectively implemented. It will be performed at three levels. RUDA will ensure EMP monitoring regularly to ensure that the mitigation plans are being effectively implemented. Monitoring and Evaluation Consultant will monitor regularly the mitigation plans are being effectively implemented. At contractor’s level, the environmental monitoring checklist will be filled on daily basis by their environmental manager.

1.9.2 Monitoring Strategy

Under the proposed monitoring strategy, it is recommended that RUDA should be responsible for all the monitoring activities. All the findings and results in the form of monitoring report will be finally shared with EPD Punjab. The monitoring program has been designed carefully considering the identified impacts and some additions or deletions probably in frequency may be taken up. **Table 1.2** provides environmental monitoring schedule for construction stage of the proposed package.

Table 1-2: Environmental Monitoring Plan

Sr. #	Parameter	Location	Monitoring Mechanism/Parameters	Frequency
A.	DESIGN/PRE-CONSTRUCTION PHASE			
1.	Land acquisition	Project Area	Confirm that all acquisition has been completed and compensation paid to affectees as per RAP	Monthly
2.	Tree cutting	Project Area	Comply with the Project Area tree plantation plan as and when required	Monthly



Sr. #	Parameter	Location	Monitoring Mechanism/Parameters	Frequency
3.	Drinking Water	Water being used for drinking purposes by workers and nearby communities	Discrete grab sampling and laboratory testing of groundwater according to PEQS	Once (Two samples of drinking water from the workers' camp and other from nearby villages)
4.	Wastewater	Workers' camp	Effluent discharges from workers' camp to be tested for all 32 parameters mentioned in PEQS	Once
5.	Noise Levels	Active construction sites and workers' camp(s)	Noise level monitoring (Day and Night) according to PEQS	Once (Once prior to the start of construction)
6.	Ambient Air	Near project site, access roads and settlements	Visual checks and monitoring of SO ₂ , NO, NO ₂ , CO, Suspended Particulate Matter, PM ₁₀ , PM _{2.5} according to PEQS	Once
B.	CONSTRUCTION PHASE			
1.	Drinking Water	Water being used for drinking purposes by workers and nearby communities	Discrete grab sampling and laboratory testing of groundwater according to PEQS	Quarterly (Two samples of drinking water from the workers' camp and other from nearby villages)
2.	Wastewater	Workers' camp	Effluent discharges from workers' camp to be tested for all 32 parameters mentioned in PEQS	Quarterly (one Sample from Contractor Camp)
3.	Noise Levels	Active construction sites and workers' camp(s)	Noise level monitoring (Day and Night) according to PEQS	Weekly (Once prior to the start of construction and then weekly throughout the construction period)
4.	Ambient Air	Near project site, access roads and settlements	Visual checks and monitoring of SO ₂ , NO, NO ₂ , CO, Suspended Particulate Matter, PM ₁₀ , PM _{2.5} according to PEQS	Quarterly (2 samples) one at construction site and one at camp.
5.	Solid Waste	Workers' camps and active construction sites	Visual Checks for assessment of condition of waste generation, segregation, storage, collection and disposal.	Fortnightly



Sr. #	Parameter	Location	Monitoring Mechanism/Parameters	Frequency
6.	Health and Safety	Workers' camps, batching plant, and active construction sites	All HSE related activities to be monitored including Tool Box Talks, safety signage, PPEs, first aid boxes, dispensary, medical check-ups, etc.	Daily during the whole construction phase.
7.	Communicable Diseases	Labor camp / project colony	Medical check-ups screening and routine safety check-ups of the communicable diseases and accidents	One before construction and once during construction phase.
8.	Ecological aspects	At and around project site or in the whole Study Area	Illegal hunting of fauna / avifauna	Weekly
9.	Environmental Audit	Whole Project Area	Auditor's checklists & performs	Annually

1.10 PLANNING FOR EMP IMPLEMENTATION

1.10.1 NOC and Other Approvals

The EIA report duly reconciled with RUDA is to be submitted to EPD Punjab for obtaining NOC. A demand draft of required EIA review fee has to be deposited along with the report by the Proponent to EP&CCD Punjab for initiating the review and EIA approval process. The approval from EP&CCD Punjab is the mandatory requirement before commencement of the proposed Project activities.

1.10.2 Stakeholder Coordination

Notwithstanding the efforts so far put in for public participation, this activity will have to be pursued through the forthcoming implementation phases of the Project. In particular, the focus will be on the improvement and modification of the proposed intervention designs.

Participation mechanisms facilitate the consultative process and include information sharing and dissemination, disclosure, and participation of affected people and other stakeholders in the proposed Project related activities. In the peculiar social set-up of the Project Area, it is also important to involve the religious leaders as representatives of the public as well as part of effective communication process. They can provide a very effective medium to bring information to the affected male population through Friday prayers. Local business community, especially the affected one, should also be brought into the process of awareness and participation.



The related institutional arrangements should also be in place for continuous consultation throughout the process of planning and implementation. During construction, RUDA will have to implement the EMP.

1.11 OCCUPATIONAL HEALTH AND SAFETY PROVISIONS FOR CONTRACTORS

1.11.1 Contractor OHS Policy

Contractor OHS policy shall be intended to: help prevent accidents, illnesses and injuries; increase safety awareness; meet requirements of environmental, occupational health, and safety local and international laws and regulations; reduce institutional liability; and establish safety responsibilities for staff/workers at the project site and local community. Contractor OHS policy outlines safety responsibilities and training requirements to ensure individual and institutional compliance with relevant environmental health and safety laws, regulations, policies, and guidelines.

It shall be the Contractor(s) policy to perform work in the safest practicable manner, consistent with good local and international best practice. The Occupational health and safety of the staff, workers and all those likely to be affected by the pre-construction, construction and operations activities is the responsibility of the Contractor(s); in addition to, adequate resources shall be made available to ensure the success of this policy. It shall be the duty of the Contractor(s) to provide safe systems of work and do everything practicable to prevent injuries, property damage, loss of life and ill health by controlling the risks arising out of construction activities. Equally it shall be the duty of each worker/staff to exercise personal responsibility for his or her own safety and that of others and co-operate with his or her worker/staff in matters of health, safety.

It shall be the Contractor(s) policy to adhere completely to the local/applicable legal requirements.

1.11.2 Contractor OHS Criteria

The Contractor OHS Criteria shall comply with the following sections:

Environment

- Contractor shall have implemented EMP described in main EIA report of proposed Project through an effective Environmental Management System. If a system is not in place, a commitment to comply with the standard in the future is required; and
- Contractor shall monitor amount and type of discharges according to requirements, such as accidental discharges and planned and permitted discharges (PEQS).

Health

- Contractor shall ensure access to an Occupational Health Service for follow up of sick leave, occupational illness/injury and other focus areas within occupational health and



working environment; and

- Contractor shall present periodic checks of basic medical such as hearing, eyesight etc. on all staff working under controlled environmental conditions.

Emergency Preparedness

Contractor shall ensure duty numbers to contact Persons are available at any time by means of a phone answering service in case of an emergency.

1.11.3 Personal Protective Equipment

PPEs are equipment worn to minimize exposure to a variety of hazards which cannot be avoided due to engineering measure (residual impact). It includes gloves, foot and eye protection, protective hearing devices (earplugs, muffs) hard hats, respirators, full body suits etc. Contractor shall be responsible to provide PPEs to working staff and ensure its use. Contractor shall adhere to Client's OHS requirements related to "Personal Protective Equipment (PPEs)" in respect of personal protective equipment. Contractor shall, at its own expense, provide Personnel for duty staff with all necessary protective clothing and equipment suitable for working conditions. List of PPEs has been provided in the **Table 1-3**.

Table 1-3: Personal Protective Equipment

Sr. No	Type of Protection	Workplace Hazard	Suggested PPEs
1	Over All, Exterior garments	Entanglement, chemical spill safeguard etc.	Long pants, shirt with sleeves (no tank tops or shorts)
2	High Visibility Vests	Accidental hazard etc.	A reflective vest will be worn outside of any other garments
3	Foot protection	Falling or rolling objects, pointed objects. Corrosive or hot liquids	Safety toed footwear / boots/ shoes
4	Eye and Face Protection	Flying particles, molten metal, liquid chemicals, gases or vapors, light radiation	Safety Glasses, Spectacles and Goggles. Spectacles with side shield. Prescription Lenses. Sun Glasses. Special Helmets or shields/ Face shields.
5	Head Protection	Falling objects, inadequate height clearance, and overhead power cords.	Hard hats with top and side impact protection. Hard hats shall be worn with the brim pointed forward.
6	Hearing protection	Noise, ultra-sound	Earplugs, muffs
7	Hand Protection	Hazardous materials, cuts or lacerations, vibrations, extreme temperature	Gloves (Plastic, leather, fireproof and rubber)



Sr. No	Type of Protection	Workplace Hazard	Suggested PPEs
8	Breathing Protection	Dusts, fogs, fumes, mists, gases, smokes, vapors	Facemasks
9	Toxic Gases Protection	Health and ailment etc.	SCBA (if applicable)
10	Falling Hazard Protection	Injury and death etc,	Safety Belt/Chains, Locks

Source: General IFC- Environmental, Health, and Safety (EHS) Guidelines

1.11.4 Work Permit Provisions

Importance of work permit system in any construction projects cannot be neglected. A work permit is a written form used to authorize jobs that expose workers to serious hazards. Permits only allow authorized personnel to perform those serious hazard activities at specified times and in a way set out in the permit and referenced documents. It identifies the work to be done, the hazards involved, and the necessary preparation and precautions for the job. A permit to work might be required for activities such as:

- Electrical works;
- Hot works;
- Excavation;
- Lone working;
- Lifting operations;
- Work in confined spaces;
- Work to high risk spaces such as laboratories, or industrial plant;
- Work at height;
- Work to roofs;
- Temporary works;
- Work with asbestos;
- Demolition; and
- Work to high pressure systems.

1.12 CAPACITY BUILDING/STRENGTHENING

The environmental and social trainings will help to ensure that the requirements of the EMP are clearly understood and followed by all project personnel. The primary responsibility of providing these trainings to all project personnel will be that of the contractor and RUDA. The trainings will be provided to different professional groups separately such as managers, skilled personnel, unskilled labors, and camp staff. Capacity building will be aimed at strengthening the operational staff in the field of environmental management and social development. The contractor will be required to provide environmental and social trainings to its staff, to ensure effective implementation of the EMP. The training plan shall include a program for periodic



training, to cover the subjects included in **Table 1.4**. Training should be carried out initially at induction of staff and repeated throughout the project.

Table 1-4 : Training Subjects for Inclusion in Contractors Training Plan

Training Activity	Participants	Type of Training	Content	Scheduling
Awareness workshop regarding Covid-19 and other vector borne diseases	Contractor Staff	Presentation	Risk, Prevention and available treatment	Biannually
Pollution prevention practices	Contractor Staff	Lecture	Awareness and importance of Practices to be adopted for pollution preventions	Biannually
Sensitivity to local culture	Contractor Staff	Lecture	Awareness of local culture and practices	Biannually
Awareness on vector borne diseases	Contractor Staff	Presentation	Risk, Prevention and available treatment	Biannually
Driver safety	Contractor Staff	Lecture	Risks, safe practices and responding to accidents	Biannually
Waste Management	Contractor Staff	Lecture	Awareness associated with waste Storage, collection and safe disposal	Biannually
Emergency Response	Contractor Staff	Workshop	Potential natural and other hazard / emergencies and dealing with emergency to minimize damage	Biannually
Ecological Conservation	Contractor Staff	Lecture	Awareness on regulations wild life and forest and penalties against violation of laws. Importance of protection of endangered species	Biannually
EPD Regulation	Managerial Staff of Contractor	Lecture	Awareness on EPD rules, guidelines, regulation and standards for satisfactory compliance	Biannually

1.13 COMMUNICATION AND DOCUMENTATION



1.13.1 Data Recording and Maintenance

All forms to be used for recording information during the environmental monitoring will follow a standard format which will correspond to the data base in to which all the gathered information will be placed. Check boxes will be used as much as possible to facilitate data entry. Tracking system will be developed for each form. Moreover, a database will also be prepared. The database may include the following information:

- Training programs;
- Staff deployment;
- Non-compliances;
- Corrective actions
- List of environmental and social data to be maintained:
 - Soil and land pollution;
 - Disposal of waste;
 - Water resources ;
 - Fuel oil and chemical spills;
 - Vegetation record;
 - Noise pollution;
 - Air and dust pollution;
 - Socio-economic data; and
 - Ecological sensitivities.

1.13.2 Meetings and Reporting

Monthly meetings will be held at site during the construction phase. The purpose of these meetings will be to discuss the routine activities, non-compliances and their remedial measures.

The Contractor will prepare monthly reports covering various aspects of the EMP implementation including compliance and effects monitoring, capacity building, and grievance redressal during project implementation. MEC will prepare quarterly, biannual and annual reports during construction period. List of reports to be prepared during implementation stages are presented in **Table 1.5**.

Table 1-5: Reporting during Implementation Stages

Report	Contents	Prepared by	Distribution
Monthly Progress Report for EMP Compliance	Non-Compliances observed on sites and actions required	Contractor	RUDA, SC, MEC,
Quarterly Progress Report for EMP Compliance	Quarterly review on implementation of EMP including compliance and monitoring, capacity building, and grievance redressal	CC, SC	RUDA, MEC, EPD Punjab
Annual Report for EMP Compliance	Results of effects monitoring Independent review of	SC	RUDA, MEC, EPD Punjab



Report	Contents	Prepared by	Distribution
	environmental and social performance on site Recommended actions required by all parties		

1.13.3 Complaint Management

The Contractor will maintain a register of complaints record from local communities and measures taken to mitigate these concerns.

1.14 ENVIRONMENTAL, SOCIAL, HEALTH AND SAFETY MANAGEMENT PLANS

1.14.1 Site Specific Environmental and Social Management Plans

Contractor shall prepare Site-Specific Environmental Management Plan (SSEMP). As a part of this plan, mitigation and management subplans shall also be prepared on the basis of the detailed impact assessment and recommended measures. These subplans shall be project-specific and shall be prepared by contractor prior to the commencement of construction activities. These plans will be reviewed and approved by RUDA. A brief description of each of these subplans is provided below:

Erosion and Drainage Control Plan will be prepared by the contractor on the basis of the mitigation measures given in EMP. The Plan will be submitted to RUDA for review and approval before contractor mobilization.

Pollution Prevention Plan will be prepared and implemented by the Contractor on the basis of WBG EHS Guidelines (2007), as well as the mitigation plans given in EMP. The Plan will be submitted to the RUDA for review and approval before contractor mobilization.

Waste Disposal and Effluent Management Plan will be prepared and implemented by the Contractor on the basis of WBG EHS Guidelines (2007), as well as the mitigation plans given in EMP. The Plan will be submitted to the RUDA for review and approval before contractor mobilization.

Traffic Management Plan will be prepared by the Contractor on the basis of the mitigation plans given in EMP, after discussion with RUDA and authorities responsible for roads and traffic. The Plan will be submitted to the RUDA for their review and approval before contractor mobilization.

Borrow Area Management and Restoration Plan for management and restoration of borrow areas will be prepared by the Contractor on the basis of requirements described in the mitigation plans. This Plan will aim at minimizing the environmental and social impacts during borrowing activities and restoring as much as possible the original natural situation of these sites by various measures (refill, leveling or smoothing). Restoration methodologies will be included in the Plan. The Plan will be approved by the RUDA.



Drinking Water Supply and Sanitation Plan: Separate water supply and sanitation provisions will be needed for the temporary facilities, labor camps and workshops, in order not to cause shortages and/or contamination. The Plan will be submitted to the RUDA for review and approval before contractor mobilization.

Construction Camp Management Plan will be prepared by the Contractor on the basis of the mitigation plans given in EMP. The Plan will include the camp layout, details of various facilities including supplies, storage, and disposal. The Plan will be submitted to the RUDA for review and approval before camp establishment.

Fuel and Hazardous Substances Management Plan will be prepared by the Contractor on the basis of mitigation plans given in EMP and in accordance with the standard operating procedures, relevant guidelines, and where applicable, material safety data sheets. The Plan will include the procedures for handling oils and chemical spills. The Plan will be submitted to the RUDA for review and approval before contractor mobilization.

Emergency Preparedness Plan will be prepared by the Contractor after assessing potential risks and hazards that could be encountered during construction of road. The Plan will be submitted to the RUDA for review and approval before contractor mobilization.

Communication Plan will be prepared by the contractor to demonstrate how they will communicate with local community leaders, provide details regarding employment opportunities, and traffic management throughout the construction period. The contractor's communication plan should define a process for receiving, recording and responding to complaints and also monitoring of the success of any responsive action taken to prevent the escalation of any conflicts.

Camp Site Restoration and Rehabilitation Plan will be prepared by the contractor. The main areas to be considered for site restoration & rehabilitation include the construction area, campsite area, temporary tracks; land used for vehicles, material stores etc. These areas should be restored to their original condition with the maximum possible effort. The restoration work comprises the removal of temporary construction works and removal of any fences installed and levelling of the area (wherever required) etc. The following procedures will be adopted for the restoration of the project site and nearby sites:

- All temporary construction built for the site development will be removed;
- Site for construction camps will be restored to its original (pre-construction) condition as much as possible;
- All the toxic and hazardous chemicals/materials will be completely removed from the site. Efforts will be made to completely remove the oils and chemical spills which occurred during the construction stage;
- Any debris from the construction site will be removed properly from the site and disposed of in an environmentally friendly manner; and
- All fencing and gates will be removed and pits will be backfilled; and
- Whole of the site will be covered with the original soil and plantation will be done, wherever required.



To achieve the above objectives, the Contractor will prepare a Camp Site Restoration & Rehabilitation Plan well before the completion of the construction activities and submit to RUDA through the SC for approval. Finally, after the completion of the restoration process, RUDA through the representatives of the community members will inspect the site and give restoration clearance to the Contractor.

Spoil Disposal Areas Management and Restoration Plan will be prepared by the Contractor. The Plan will describe the procedures for spoil management, transportation and disposal at the selected site(s). The Plan will also describe the procedures for systematically disposing the spoil at the disposal site. This Plan would aim at minimizing the environmental and social impacts during disposal activities and restoring as much as possible the original natural situation of these sites by various measures (landscaping, leveling or smoothing). The Plan will include measures to avoid land/soil erosion and landslides. Restoration methodologies will be included in the Plan. The Plan would be approved by the SC and a landscape architect assigned by RUDA.

1.15 CHANGE MANAGEMENT PLAN

The present EMP has been carried out on the basis of the Project information available at this stage. It is however possible that the changes are made in some components of the project during the design and construction phases. In order to address the environmental and social implications of these changes, a simple framework has been devised, which is described in this section. The change management framework recognizes the three broad categories (A, B & C) of the changes in the Project as detailed below:

1.15.1 Category 'A' Change

The 'Category A' change is one that will lead to a significant departure from the project described in the EMP and consequently requires a reassessment of the environmental and socioeconomic impacts associated with the change. In such an instance, Client will be required to conduct a fresh EMP of the changed aspect of the Project design and send the updated report to the relevant agencies for approval.

1.15.2 Category 'B' Change

The category 'B' change is one that will entail project activities not significantly different from those described in the EIA, which may result in the project effects with overall magnitude to be similar to the assessment made in this report. In case of such changes, the EIA will be required to reassess the environmental and socio-economic impacts of the activity, specify additional mitigation measures, if necessary and report the changes to the relevant agencies.

1.15.3 Category 'C' Change

A Category-C change is one that is of little consequence to the EMP findings such as change in alignment. This type of change does not result in effects beyond those already assessed in



the EMP; rather it may be made onsite to minimize the impact of an activity, such as re-aligning a particular section to avoid cutting a tree or relocating construction campsites to minimize clearing vegetation. The only actions required for such changes are informing all the key personnel and document the change.

1.16 TREE PLANTATION PLAN

The basic purpose of afforestation/plantation of suitable species in the project area is to reduce the risk been made due to cutting of trees for the proposed project and to enhance green cover and improve the overall environment of the area. Afforestation will not only reduce the risk been made but will also increase the carrying capacity of the area regarding many positive aspects.

Plantation will be done after the removal of trees during the construction work immediately (if any). Plantation of indigenous trees species is highly important to maintain the biodiversity and ecological balance. It is also important to prevent global warming, soil erosion and pollution. Afforestation purifies the environment and helps in reducing the carbon dioxide level. The afforestation activity will further help in enhancing the socio-economic condition of the area and project sustainability.

1.17 CHANCE FIND PROCEDURE

The purpose of these guidelines is to address the possibility of archaeological deposits, finds and features becoming exposed during earth removing and ground altering activities to provide procedures to follow in the event of a chance archaeological find. The guidelines for chance find procedure of archaeological deposits is provided in the EIA Report.

1.18 CODES OF PRACTICES

Contractor will follow the following Environmental Codes of Practices during the implementation of the proposed package.

1.18.1 Waste Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
General Waste	Soil and water pollution from the improper management of wastes and excess materials from the construction sites.	The Contractor shall <ul style="list-style-type: none"> • Develop waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris, food waste etc.) prior to commencing of construction and submit to SC for approval. • Organize disposal of all wastes generated during construction in an environmentally acceptable manner. This will include consideration of the nature and location of



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>disposal site, so as to cause less environmental impact.</p> <ul style="list-style-type: none"> • Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach. • Segregate and reuse or recycle all the wastes, wherever practical. • Prohibit burning of solid waste • Collect and transport non-hazardous wastes to all the approved disposal sites. Vehicles transporting solid waste shall be covered with tarps or nets to prevent spilling waste along the route • Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process. • Provide refuse containers at each worksite. • Request suppliers to minimize packaging where practicable. • Place a high emphasis on good housekeeping practices. • Maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary • Storage of all wastes before transportation and final disposal.
Hazardous Waste	Health hazards and environmental impacts due to improper waste management practices	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Collect chemical wastes drums (or similar sealed container), appropriately labeled for safe transport to an approved chemical waste depot. • Store, transport and handle all chemicals avoiding potential environmental pollution. • Store all hazardous wastes appropriately in bunded areas away from water courses. • Make available Material Safety Data Sheets (MSDS) for hazardous materials on-site during construction. • Collect hydrocarbon wastes, including lube oils, for safe transport off-site for reuse, recycling, treatment or disposal at approved locations. • Construct concrete or other impermeable flooring to prevent seepage in case of spills



1.18.2 Fuels and Hazardous Goods Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
<p>Fuels and hazardous goods.</p>	<p>Materials used in construction have a potential to be a source of contamination. Improper storage and handling of fuels, lubricants, chemicals and hazardous goods/materials on-site, and potential spills from these goods may harm the environment or health of construction workers.</p>	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare spill control procedures and submit the plan for SC approval. • Train the relevant construction personnel in handling of fuels and spill control procedures. • Store dangerous goods in bunded areas on a top of a sealed plastic sheet away from watercourses; and also under a rainwater shed (to prevent contact with rainwater). • Refueling shall occur only within bunded areas. • Make available MSDS for chemicals and dangerous goods on- site. • Transport waste of dangerous goods, which cannot be recycled, to a designated disposal site approved by EPD Punjab or sold to EPD Punjab registered vendors. • Provide absorbent and containment material (e.g., absorbent matting) where hazardous material are used and stored and personnel trained in the correct use. • Provide protective clothing, safety boots, helmets, masks, gloves, goggles, to the construction personnel, appropriate to materials in use. • Make sure all containers, drums, and tanks that are used for storage are in good condition and are labeled with expiry date. Any container, drum, or tank that is dented, cracked, or rusted might eventually leak. Check for leakage regularly to identify potential problems before they occur. • Put containers and drums in temporary storages in clearly marked areas, where they will not be run over by vehicles or heavy machinery. The area shall preferably slope or drain to a safe collection area in the event of a spill. • Put containers and drums in permanent storage areas on an impermeable floor that slopes to a safe collection area in the event of a spill or leak.



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • Take all precautionary measures when handling and storing fuels and lubricants, avoiding environmental pollution. • Avoid the use of material with greater potential for contamination by substituting them with more environmentally friendly materials. • Return the gas cylinders to the supplier. However, if they are not empty prior to their return, they must be labeled with the name of the material they contained or contain, information on the supplier, cylinder serial number, pressure, their last hydrostatic test date, and any additional identification marking that may be considered necessary.

1.18.3 Water Resources Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Hazardous Material and Waste	Water pollution from the storage, handling and disposal of hazardous materials and general construction waste, and accidental spillage	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Follow the management guidelines proposed in ECPs 1 and 2. • Minimize the generation of sediment, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and chemical wastes). These substances must not enter waterways, storm water systems or underground water tables
Discharge from construction sites	Waste waters from construction sites and work camps. The construction works will modify groundcover and topography changing the surface water drainage patterns of the area including infiltration and storage of storm water.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Minimize the amount of exposed soil at any one time (only clear vegetation immediately before construction is about to begin) • Install temporary drainage works (channels and bunds) in areas required for sediment and erosion control and around storage areas for construction materials • Install temporary sediment basins, where appropriate, to capture sediment-laden runoff from site • Divert runoff from undisturbed areas around the construction site



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • Stockpile materials away from drainage lines • Prevent all solid entering waterways by collecting solid waste, oils, chemicals, bitumen spray waste and wastewaters from brick, concrete and asphalt cutting and transport to an approved waste disposal site or recycling depot • Collect, transport and discharge the septic tank waste from the construction camps in the nearby municipal waste water treatment plants • Ensure that tires of construction vehicles are cleaned in the washing bay (constructed at the entrance of the construction site) to remove the mud from the wheels. This shall be done in every exit of each construction vehicle to ensure the local roads are kept clean.
Soil Erosion and siltation	Soil erosion and dust from the material stockpiles will increase the sediment and contaminant loading of surface water bodies.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Ensure that sealed roads used by construction vehicles are swept regularly to remove sediment. • Water the material stockpiles, access roads and bare soils on an as required basis to minimize dust. Increase the watering frequency during periods of high risk (e.g. high winds)

1.18.4 Drainage Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Excavation and earth works, and construction yards	Lack of proper drainage for rainwater/liquid waste or wastewater owing to the construction activities harms environment in terms of water and soil contamination, and mosquito growth.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare a program for prevent/avoid standing waters, which SC will verify in advance and confirm during implementation • Provide alternative drainage for rainwater if the construction works/earth-fillings cut the established drainage line • Establish local drainage line with appropriate silt collector and silt screen for rainwater or wastewater connecting to the existing established drainage lines already there



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • Rehabilitate road drainage structures immediately if damaged by contractors' road transports. • Build new drainage lines as appropriate and required for wastewater from construction yards connecting to the available nearby recipient water bodies. Ensure wastewater quality conforms to the relevant standards provided by PEQS, before it being discharged into the recipient water bodies. • Ensure the internal roads/hard surfaces in the construction yards/construction camps that generate has storm water drainage to accommodate high runoff during downpour and that there is no stagnant water in the area at the end of the downpour. • Construct wide drains instead of deep drains to avoid sand deposition in the drains that require frequent cleaning. • Provide appropriate silt collector and silt screen at the inlet and manholes and periodically clean the drainage system to avoid drainage congestion • Protect natural slopes of drainage channels to ensure adequate storm water drains. • Regularly inspect and maintain all drainage channels to assess and alleviate any drainage congestion problem. • Reduce infiltration of contaminated drainage through storm water management design
Ponding of water	Health hazards due to mosquito breeding	<ul style="list-style-type: none"> • Do not allow ponding of water especially near the waste storage areas and construction camps • Discard all the storage containers that are capable of storing of water, after use or store them in inverted position

1.18.5 Soil Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Storage of	Spillage of hazardous and toxic chemicals will contaminate the soils	The Contractor shall



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Hazardous and toxic chemicals		<ul style="list-style-type: none"> • Strictly manage the wastes management plans proposed in ECP1 and storage of materials in ECP2 • Construct appropriate spill contaminant facilities for all fuel storage areas • Establish and maintain a hazardous materials register detailing the location and quantities of hazardous substances including the storage, use of disposals • Train personnel and implement safe work practices for minimizing the risk of spillage • Identify the cause of contamination, if it is reported, and contain the area of contamination. The impact may be contained by isolating the source or implementing controls around the affected site • Remediate the contaminated land using the most appropriate available method to achieve required commercial/industrial guideline validation results
Construction material stock piles	Erosion from construction material stockpiles may contaminate the soils	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds

1.18.6 Erosion and Sediment Control

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities and material stockpiles	The impact of soil erosion are (i) Increased run off and sedimentation causing a greater flood hazard to the downstream, (ii) destruction of aquatic environment in nearby lakes, streams, and reservoirs caused by erosion and/or deposition of sediment damaging the spawning grounds of fish, and (iii) destruction of vegetation by burying or gullyng.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Locate stockpiles away from drainage lines • Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds • Remove debris from drainage paths and sediment control structures • Cover the loose sediments and water them if required • Divert natural runoff around construction areas prior to any site disturbance • Install protective measures on site prior to construction, for example, sediment traps



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> Observe the performance of drainage structures and erosion controls during rain and modify as required.

1.18.7 Top Soil Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Land clearing and earth works	Earthworks will impact the fertile top soils that are enriched with nutrients required for plant growth or agricultural development.	<p>The Contractor shall</p> <ul style="list-style-type: none"> Strip the top soil to a depth of 15 cm and store in stock piles of height not exceeding 2m. Remove unwanted materials from top soil like grass, roots of trees and similar others. The stockpiles will be done in slopes of 2:1 to reduce surface runoff and enhance percolation through the mass of stored soil. Locate topsoil stockpiles in areas outside drainage lines and protect from erosion. Construct diversion channels and silt fences around the topsoil stockpiles to prevent erosion and loss of topsoil. Spread the topsoil to maintain the physico-chemical and biological activity of the soil. The stored top soil will be utilized for covering all disturbed area and along the proposed plantation sites Prior to the re-spreading of topsoil, the ground surface will be ripped to assist the bunding of the soil layers, water penetration and revegetation
Transport	Vehicular movement outside right of way of existing roads or temporary access roads will affect the soil fertility of the agricultural lands	<ul style="list-style-type: none"> Limit equipment and vehicular movements to within the approved construction zone Construct temporary access tracks to cross concentrated water flow lines at right angles Plan construction access to make use, if possible, of the final road alignment Use vehicle-cleaning devices, for example, ramps or wash down areas

1.18.8 Topography and Landscaping



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Land clearing and earth works	Construction activities especially earthworks will change topography and disturb the natural rainwater/flood water drainage as well as will change the local landscape.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Ensure the topography of the final surface of all raised lands (construction yards, approach roads, access roads, etc.) are conducive to enhance natural draining of rainwater/flood water; • Keep the final or finished surface of all the raised lands free from any kind of depression that insists water logging • Undertake mitigation measures for erosion control/prevention by grass-turfing and tree plantation, where there is a possibility of rain-cut that will change the shape of topography. • Cover immediately the uncovered open surface that has no use of construction activities with grass-cover and tree plantation to prevent soil erosion and bring improved landscaping

1.18.9 Air Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Air quality can be adversely affected by vehicle exhaust emissions and combustion of fuels.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Fit vehicles with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition. • Operate the vehicles in a fuel efficient manner • Cover haul vehicles carrying dusty materials moving outside the construction site • Impose speed limits on all vehicle movement at the worksite to reduce dust emissions • Control the movement of construction traffic • Water construction materials prior to loading and transport • Service all vehicles regularly to minimize emissions • Limit the idling time of vehicles not more than 2 minutes
Construction machinery	Air quality can be adversely affected by emissions from machinery and combustion of fuels.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Fit machinery with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition in accordance with the



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>specifications defined by their manufacturers to maximize combustion efficiency and minimize the contaminant emissions. Proof or maintenance register shall be required by the equipment suppliers and contractors/subcontractors</p> <ul style="list-style-type: none"> • Focus special attention on containing the emissions from generators • Machinery causing excess pollution (e.g. visible smoke) will be banned from construction sites • Service all equipment regularly to minimize emissions • Provide filtering systems, duct collectors or humidification or other techniques (as applicable) to the concrete batching and mixing plant to control the particle emissions in all its stages, including unloading, collection, aggregate handling, cement dumping, circulation of trucks and machinery inside the installations
<p>Construction activities</p>	<p>Dust generation from construction sites, material stockpiles and access roads is a nuisance in the environment and can be a health hazard.</p>	<ul style="list-style-type: none"> • Water the material stockpiles, access roads and bare soils on an as required basis to minimize the potential for environmental nuisance due to dust. Increase the watering frequency during periods of high risk (e.g. high winds). Stored materials such as gravel and sand shall be covered and confined to avoid their being wind-drifted • Minimize the extent and period of exposure of the bare surfaces • Reschedule earthwork activities or vegetation clearing activities, where practical, if necessary to avoid during periods of high wind and if visible dust is blowing off-site • Store the cement in silos and minimize the emissions from silos by equipping them with filters. • Establish adequate locations for storage, mixing and loading of construction materials, in a way that dust dispersion is prevented because of such operations • Crushing of rocky and aggregate materials shall be wet-crushed, or performed with particle emission control systems

**1.18.10 Noise and Vibration Management**

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Noise quality will be deteriorated due to vehicular traffic	The Contractor shall <ul style="list-style-type: none"> • Maintain all vehicles in order to keep it in good working order in accordance with manufactures maintenance procedures • Make sure all drivers will comply with the traffic codes concerning maximum speed limit, driving hours, etc. • Organize the loading and unloading of trucks, and handling • operations for the purpose of minimizing construction noise on the work site
Construction machinery	Noise and vibration may have an impact on people, property, fauna, livestock and the natural environment.	The Contractor shall <ul style="list-style-type: none"> • Appropriately site all noise generating activities to avoid noise pollution to local residents • Use the quietest available plant and equipment • Modify equipment to reduce noise (for example, noise control kits, lining of truck trays or pipelines) • Maintain all equipment in order to keep it in good working order in accordance with manufactures maintenance procedures. Equipment suppliers and contractors shall present proof of maintenance register of their equipment. • Install acoustic enclosures around generators to reduce noise levels. • Fit high efficiency mufflers to appropriate construction equipment • Avoid the unnecessary use of alarms, horns and sirens
Construction activity	Noise and vibration may have an impact on people, property, fauna, livestock and the natural environment.	The Contractor shall <ul style="list-style-type: none"> • Notify adjacent landholders prior any typical noise events outside of daylight hours (6 pm to 7 am) if the construction works are being carried out near residential areas • Educate the operators of construction equipment on potential noise problems and the techniques to minimize noise emissions • Employ best available work practices on-site to minimize occupational noise levels • Install temporary noise control barriers where appropriate



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • Notify affected people if major noisy activities will be undertaken, • e.g. pile driving • Plan activities on site and deliveries to and from site to minimize impact • Monitor and analyze noise and vibration results and adjust construction practices as required. • Avoid undertaking the noisiest activities, where possible, when working at night (6pm to 7 am) near the residential areas

1.18.11 Protection of Flora

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Vegetation clearance	Local flora are important to provide shelters for the birds, offer fruits and/or timber/fire wood, protect soil erosion and overall keep the environment very friendly to human-living. As such damage to flora has wide range of adverse environmental impacts.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Reduce disturbance to surrounding vegetation • Use appropriate type and minimum size of machine to avoid disturbance to adjacent vegetation. • Get approval from supervision consultant for clearance of vegetation. • Make selective and careful pruning of trees where possible to reduce need of tree removal. • Control noxious weeds by disposing of at designated dump site or burn on site. • Clear only the vegetation that needs to be cleared in accordance with the plans. These measures are applicable to both the construction areas as well as to any associated activities such as sites for stockpiles, disposal of fill and construction of diversion roads, etc. • Before excavation, mark the trees that must remain on the site and cannot be removed. • Do not burn off cleared vegetation – where feasible, chip or mulch and reuse it for the rehabilitation of affected areas, temporary access tracks or landscaping. Mulch provides a seed source, can limit embankment erosion, retains soil moisture and nutrients, and



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>encourages re-growth and protection from weeds.</p> <ul style="list-style-type: none"> • Return topsoil and mulched vegetation (in areas of native vegetation) to approximately the same area of the roadside it came from. • Avoid work within the drip-line of trees to prevent damage to the tree roots and compacting the soil. • Minimize the length of time the ground is exposed or excavation left open by clearing and re-vegetate the area at the earliest practically possible. • Ensure excavation works occur progressively and re-vegetation done at the earliest • Provide adequate knowledge to the workers regarding nature protection and the need of avoid felling trees during construction • Supply appropriate fuel in the work caps to prevent fuel wood collection

1.18.12 Protection of Fauna

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Vegetation clearance	Clearance of vegetation may impact shelter, feeding and/or breeding of animals	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Restrict the tree removal to the minimum required. • Retain tree hollows on site, or relocate hollows, where appropriate • Leave dead trees where possible as habitat for fauna • Identify the trees that require specific attention (e.g the hollow bearing trees) and fell them in a manner which reduces the potential for fauna mortality. Felled trees will be inspected after felling for fauna and if identified and readily accessible will be removed and relocated or rendered assistance if injured. After felling, hollow bearing trees will remain unmoved overnight to allow animals to move of their own volition.
Construction camps	Illegal poaching	<ul style="list-style-type: none"> • Provide adequate knowledge to the workers regarding protection of flora and fauna, and



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		relevant government regulations and punishments for illegal poaching.

1.18.13 Road Transport and Road Traffic Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Increased traffic use of road by construction vehicles will affect the movement of normal road traffics and the safety of the road-users.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Prepare and submit a traffic management plan to the SC for their approval before commencement of construction. • Include in the traffic management plan to ensure uninterrupted traffic movement during construction: detailed drawings of traffic arrangements showing all detours, temporary road, temporary bridges temporary diversions, necessary barricades, warning signs/ lights, and road signs. • Provide signs at strategic locations of the roads complying with the schedules of signs contained in the Pakistan Traffic Regulations. • Install and maintain a display board at each important road intersection on the roads to be used during construction, which shall clearly show the following information in local language: <ul style="list-style-type: none"> ○ Location: chainage and village name ○ Duration of construction period ○ Period of proposed detour / alternative route ○ Suggested detour route map ○ Name and contact address/telephone number of the concerned personnel ○ Name and contact address / telephone number of the Contractor ○ Inconvenience is sincerely regretted.
Construction vehicular traffic	Accidents and spillage of fuels and chemicals	<ul style="list-style-type: none"> • Restrict truck deliveries, where practicable, to day time working hours (7 am to 6 pm). • Restrict the transport of oversize loads. • Operate road traffics/transport vehicles, if possible, to non-peak periods to minimize traffic disruptions. • Enforce on-site speed limit

**1.18.14 Construction Camp Management**

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Siting and Location of construction camps	Campsites for construction workers are the important locations that have significant impacts such as health and safety hazards on local resources and infrastructure of nearby communities.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Locate the construction camps within the proposed site • Consider the location of construction camps away from communities in order to avoid social conflict in using the natural resources such as water or to avoid the possible adverse impacts of the construction camps on the surrounding communities. • Submit to the SC for approval a detailed layout plan for the development of the construction camp showing the relative locations of all temporary buildings and facilities that are to be constructed together with the location of site roads, fuel storage areas (for use in power supply generators), solid waste management and dumping locations, and drainage facilities, prior to the development of the construction camps. • Local authorities responsible for health, religious and security shall be duly informed on the set up of camp facilities so as to maintain effective surveillance over public health, social and security matters
Construction Camp Facilities	Lack of proper infrastructure facilities, such as housing, water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards.	<p>Contractor shall provide the following facilities in the campsites</p> <ul style="list-style-type: none"> • Housing facilities for all the non-local workers hired by the contractor • Safe and reliable water supply. • Hygienic sanitary facilities and sewerage system. The toilets and domestic waste water will be collected through a common sewerage. Provide separate latrines and bathing places for males and females with total isolation by wall or by location. The minimum number of toilet facilities required is one toilet for every ten persons. • Treatment facilities for sewerage of toilet and domestic wastes • Storm water drainage facilities. Both sides of roads are to be provided with shallow v drains to drain off storm water to a silt retention pond which shall be sized to provide a minimum of 20 minutes retention of storm water flow from



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>the whole site. Channel all discharge from the silt retention pond to natural drainage via a grassed swale at least 20 meters in length with suitable longitudinal gradient.</p> <ul style="list-style-type: none"> • Paved internal roads. Ensure with grass/vegetation coverage to be made of the use of top soil that there is no dust generation from the loose/exposed sandy surface. Pave the internal roads of at least haring-bond bricks to suppress dusts and to work against possible muddy surface during monsoon. • Provide child crèches for women working construction site. The crèche shall have facilities for dormitory, kitchen, indoor and outdoor play area. Schools shall be attached to these crèches so that children are not deprived of education whose mothers are construction workers • Provide in-house community/common entertainment facilities. dependence of local entertainment outlets by the construction camps to be discouraged/prohibited to the extent possible.
Disposal of waste	Management of wastes is crucial to minimize impacts on the environment	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Ensure proper collection and disposal of solid wastes within the construction camps • Insist waste separation by source; organic wastes in one pot and inorganic wastes in another pot at household level. • Store inorganic wastes in a safe place within the household and clear organic wastes on daily basis to waste collector. Establish waste collection, transportation and disposal systems with the manpower and equipment/vehicles needed. • Dispose organic wastes in a designated safe place on daily basis. At the end of the day cover the organic wastes with a thin layer of sand so that flies, mosquitoes, dogs, cats, rats, are not attracted. One may dig a large hole to put organic wastes in it; take care to protect groundwater from contamination by leachate formed due to decomposition of wastes. Cover the bed of the pit with impervious layer of materials (clayey or thin concrete) to protect groundwater from contamination.



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • Locate the garbage pit/waste disposal site min 500 m away from the residence so that peoples are not disturbed with the odor likely to be produced from anaerobic decomposition of wastes at the waste dumping places. Encompass the waste dumping place by fencing and tree plantation to prevent children to enter and play with. • Do not establish site specific landfill sites. All solid waste will be collected and removed from the work camps and disposed in approval waste disposal sites.
Fuel supplies for cooking purposes	Illegal sourcing of fuel wood by construction workers will impact the natural flora and fauna	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Provide fuel to the construction camps for their domestic purpose, in order to discourage them to use fuel wood or other biomass. • Made available alternative fuels like natural gas or kerosene on ration to the workforce to prevent them using biomass for cooking. • Conduct awareness campaigns to educate workers on preserving the protecting the biodiversity and wildlife of the project area, and relevant government regulations and punishments on wildlife protection.
Health and Hygiene	There will be a potential for diseases to be transmitted including COVID 19, heat stroke, malaria, exacerbated by inadequate health and safety practices. There will be an increased risk of work crews spreading sexually transmitted infections and HIV/AIDS.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Provide adequate health care facilities within construction sites. • Provide first aid facility round the clock. Maintain stock of medicines in the facility and appoint fulltime designated first aider or nurse. • Provide ambulance facility for the laborers during emergency to be transported to nearest hospitals. • Initial health screening of the laborers coming from outside areas • Train all construction workers in basic sanitation and health care issues and safety matters, and on the specific hazards of their work • Provide COVID 19, heat stroke and HIV awareness programming, including STI (sexually transmitted infections) and HIV information, education and communication for all workers on regular basis



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • Complement educational interventions with easy access to condoms at campsites as well as voluntary counseling and testing • Provide adequate drainage facilities throughout the camps to ensure that disease vectors such as stagnant water bodies and puddles do not form. Regular mosquito repellent sprays during monsoon. • Carryout short training sessions on best hygiene practices to be mandatorily participated by all workers. Place display boards at strategic locations within the camps containing messages on best hygienic practices
Safety	In adequate safety facilities to the construction camps may create security problems and fire hazards	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Provide appropriate security personnel (police / home guard or private security guards) and enclosures to prevent unauthorized entry in to the camp area. • Maintain register to keep a track on a head count of persons present in the camp at any given time. • Encourage use of flameproof material for the construction of labor housing / site office. Also, ensure that these houses/rooms are of sound construction and capable of withstanding wind storms/cyclones. • Provide appropriate type of firefighting equipment suitable for the construction camps • Display emergency contact numbers clearly and prominently at strategic places in camps. • Communicate the roles and responsibilities of laborers in case of emergency in the monthly meetings with contractors.
Site Restoration	Restoration of the construction camps to original condition requires demolition of construction camps.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Dismantle and remove from the site all facilities established within the construction camp including the perimeter fence and lockable gates at the completion of the construction work. • Dismantle camps in phases and as the work gets decreased and not wait for the entire work to be completed • Give prior notice to the laborers before demolishing their camps/units



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<ul style="list-style-type: none"> • Reuse the demolition debris to a maximum extent. Dispose remaining debris at the designated waste disposal site. • Handover the construction camps with all built facilities as it is if agreement between both parties (contractor and land-owner) has been made so. • Restore the site to its condition prior to commencement of the works or to an agreed condition with the landowner. • Not make false promises to the laborers for future employment in O&M of the project.

1.18.15 Socio-Cultural and Religious Issues

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities near residential areas	Disturbance from construction activities (dust, noise, traffic, conflicts with contractor's work force etc.)	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Establish a system for receiving complaints from the community and address them (the community can also make complaints to the GRM established under the project) • Shall ensure all the construction workers follows the following code of conduct: • All workers are strictly forbidden to establish any kind of relationship with local women bring any un-related women to the project site. • All workers should avoid sexual harassment and child abuse. • All workers must not leave the camps or work sites unless a written authorization is issued by the respective supervisor • The contractors will advise and prohibit the local population and its authorities or representatives not to enter the project operation areas (camp sites, colonies, etc.) in order to minimize the potential risk of incidents related to the operations.
Construction activities near	Disturbance from construction works to the	The Contractor shall



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Religious and cultural sites	cultural and religious sites, and contractors lack of knowledge on cultural issues cause social disturbances.	<ul style="list-style-type: none"> • Communicate to the public through community consultation and newspaper announcements regarding the scope and schedule of construction, as well as certain construction activities causing disruptions or access restriction. • Do not block access to cultural and religious sites, wherever possible • Restrict all construction activities within the foot prints of the construction sites. • Stop construction works that produce noise (particularly during prayer time) shall there be any mosque/religious/educational institutions close to the construction sites and users make objections. • Take special care and use appropriate equipment when working next to a cultural/religious institution. • Stop work immediately and notify the site manager if, during construction, an archaeological or burial site is discovered. It is an offence to recommence work in the vicinity of the site until approval to continue is given by the SC/RUDA. • Provide separate prayer facilities to the construction workers. • Show appropriate behavior with all construction workers especially women and elderly people • Allow the workers to participate in praying during construction time • Resolve cultural issues in consultation with local leaders and supervision consultants • Establish a mechanism that allows local people to raise grievances arising from the construction process. • Inform the local authorities responsible for health, religious and security duly informed before commencement of civil works so as to maintain effective surveillance over public health, social and security matters

1.18.16 Worker Health and Safety



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Best practices	Construction works may pose health and safety risks to the construction workers and site visitors leading to severe injuries and deaths. The population in the proximity of the construction site and the construction workers will be exposed to a number of (i) biophysical health risk factors, (e.g. noise, dust, chemicals, construction material, solid waste, waste water, vector transmitted diseases etc), (ii) risk factors resulting from human behavior (e.g. COVID 19, heat stroke, STD, HIV etc) and (iii) road accidents from construction traffic.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Implement suitable safety standards for all workers and site visitors which shall not be less than those laid down on the international standards (e.g. International Labor Office guideline on ‘Safety and Health in Construction; World Bank Group’s ‘Environmental Health and Safety Guidelines’) and contractor’s own national standards or statutory regulations, in addition to complying with the national standards of the Government of Pakistan (• Provide the workers with a safe and healthy work environment, taking into account inherent risks in its particular construction activity and specific classes of hazards in the work areas, • Provide personal protection equipment (PPE) for workers, such as safety boots, helmets, masks, gloves, protective clothing, goggles, full-face eye shields, and ear protection. Maintain the PPE properly by cleaning dirty ones and replacing them with the damaged ones. • Safety procedures include provision of information, training and protective clothing to workers involved in hazardous operations and proper performance of their job • Appoint an environment, health and safety manager to look after the health and safety of the workers • Inform the local authorities responsible for health, religious and security duly informed before commencement of civil works and establishment of construction camps so as to maintain effective surveillance over public health, social and security matters
Best practices	Child and pregnant labor	<p>The Contractor shall</p> <ul style="list-style-type: none"> • not hire children of less than 16 years of age and pregnant women or women who delivered a child within 8 preceding weeks, in accordance with the national Labor Laws
Accidents	Lack of first aid facilities and health care facilities in the immediate vicinity will	<ul style="list-style-type: none"> • Provide health care facilities and first aid facilities are readily available. Appropriately equipped first-aid stations shall be easily accessible throughout the place of work



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	aggravate the health conditions of the victims	<ul style="list-style-type: none"> • Document and report occupational accidents, diseases, and incidents. • Prevent accidents, injury, and disease arising from, associated with, or occurring in the course of work by minimizing, so far as reasonably practicable, the causes of hazards. In a manner consistent with good international industry practice. • Identify potential hazards to workers, particularly those that may be life-threatening and provide necessary preventive and protective measures. • Provide awareness to the construction drivers to strictly follow the driving rules • Provide adequate lighting in the construction area and along the roads
Construction Camps	Lack of proper infrastructure facilities, such as housing, water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards.	<p>The Contractor shall provide the following facilities in the campsites to improve health and hygienic conditions as mentioned in ECP 14 Construction Camp Management</p> <ul style="list-style-type: none"> • Adequate ventilation facilities • Safe and reliable water supply • Hygienic sanitary facilities and sewerage system. The toilets and domestic waste water will be collected through a common sewerage. • Treatment facilities for sewerage of toilet and domestic wastes • Storm water drainage facilities. • Recreational and social facilities • Safe storage facilities for petroleum and other chemicals in accordance with ECP 2 • Solid waste collection and disposal system in accordance with ECP1. • Arrangement for trainings • Paved internal roads. • Security fence at least 2 - 3 m height. • Sick bay and first aid facilities
Water and sanitation facilities at the construction sites	Lack of Water sanitation facilities at construction sites cause inconvenience to the construction workers and affect their personal hygiene.	The contractor shall provide portable toilets at the construction sites, if about 25 people are working the whole day for a month. Location of portable facilities shall be at least 6 m away from storm drain system and surface waters. These portable toilets shall be cleaned once a day and all the sewerage shall be pumped from the collection



Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		<p>tank once a day and shall be brought to the common septic tank for further treatment.</p> <p>Contractor shall provide bottled drinking water facilities to the construction workers at all the construction sites.</p>
Other ECPs	Potential risks on health and hygiene of construction workers and general public	<p>The Contractor shall follow the following ECPs to reduce health risks to the construction workers and nearby community</p> <p>ECP 2: Fuels and Hazardous Goods Management ECP 4: Drainage Management ECP 9: Air Quality Management ECP 10: Noise and Vibration Management ECP 13: Road Transport and Road Traffic Management</p>
Trainings	Lack of awareness and basic knowledge in health care among the construction workforce, make them susceptible to potential diseases.	<p>The Contractor shall</p> <ul style="list-style-type: none"> • Train all construction workers in basic sanitation and health care issues (e.g., how to avoid malaria, heat stroke, COVID-19 and transmission of sexually transmitted infections (STI) HIV/AIDS. • Train all construction workers in general health and safety matters, and on the specific hazards of their work. Training shall consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate. • Commence the malaria, heat stroke, COVID-19, HIV/AIDS and STI education campaign before the start of the construction phase and complement it with by a strong condom marketing, increased access to condoms in the area as well as to voluntary counseling and testing. • Implement malaria, COVID-19, heat stroke, HIV/AIDS and STI education campaign targeting all workers hired, international and national, female and male, skilled, semi- and unskilled occupations, at the time of recruitment and thereafter pursued throughout the construction phase on ongoing and regular basis. This shall be complemented by easy access to condoms at the workplace as well as to voluntary counseling and testing.



1.19 AUDITS AND ANNUAL REVIEW OF EMP

Internal environmental and social audits will be held with an objective to review the effectiveness of environmental management of the project. RUDA will carry out annual review of the appropriateness and adequacy of EMP in the light of its own monitoring and supervision as well as on the basis of the third party monitoring and audits. RUDA will revise the EMP in case substantial gaps and shortcomings are identified in these plans.

External third party environmental audits will be held with an objective to review the effectiveness of environmental and social management of the project independently. It is proposed that third party carry out these audits on yearly basis. These audits would be used to re-examine the continued appropriateness of the EMP and to provide advice on any updates required.

1.20 NON-COMPLIANCE OF EMP

The implementation of the proposed EMP involves inputs from various functionaries. The Contractor will be primarily responsible for ensuring implementation of the mitigation measures proposed in the EIA including EMP and Environmental Permit from EPD Punjab, which will be part of the contract documents. The provision of the environmental mitigation cost will be made in the total cost of Project . However, if the Contractor fails to comply with the implementation of EIA including EMP and Environmental Permit from EPD Punjab and submission of the monthly compliance reports, deductions will be made from the payments to the Contractor claimed under the heads of BOQ.

1.21 BUDGET FOR IMPLEMENTATION OF EMP

1.21.1 Cost for Testing of Ambient Air, Noise, Water

Testing and analysis for soil, ambient air, noise, water and wastewater shall be undertaken during construction phase will be the responsibility of the contractor to ensure the effectiveness of the proposed mitigation measures. Certain environmental parameters shall be selected and quantitative analysis shall be carried out. The results of analysis must be compared with the guidelines; standards and pre-project conditions to investigate whether the EMP and its implementation are effective for the mitigation of impacts or not. Parameters to be analyzed during construction of the project and responsibilities for monitoring and reporting have been discussed in the **Table 1.6**.



Table 1-6: Environmental Monitoring and Testing Cost Estimate

Sr. No.	Parameter	Mechanism	Frequency	Quantity	Remarks
B	Construction Phase				
1	Water / Wastewater	Discrete grab sampling and laboratory testing of water/wastewater samples by EPD approved Laboratory for monitoring.	Quarterly from each source	2 samples one surface water one wastewater from camp	The Contractor shall quote quarterly monitoring cost for the construction period and will be updated each year based on latest rates during construction timeline of the proposed Project.
2	Drinking Water	Ground used in camp for drinking or from any filtration plant.	Quarterly from each source	One sample	
2	Noise Levels	dBA Leq. as per PEQS by EPD approved Laboratory	Quarterly	02	
3	Ambient Air Monitoring	Monitoring of CO, SO _x , NO _x , and PM _{2.5} PM ₁₀ by EPD approved Laboratory	Quarterly	02 one point at construction site and one at camp site.	



1.22 ENVIRONMENTAL MANAGEMENT COST

The cost required to effectively implement the mitigation measures is important for the sustainability of the project and shall be considered in environmental management (**Table 1.8**).

Table 1-7: Environmental Management Cost



Sr. No.	Activity	Description	Cost (Rs.)	Rationale
1.	Medical screening for workers	n for 100 employees <i>Pre-Construction Phase and Construction Phase:</i>		Medical screening of the workers before deployment on site and twice a year during whole construction period.
2.	Material Storage, handling and use	Includes cost of 20 Number of tarpaulins and storage at separate area and installment of barrication.		--
3.	Water Sprinkling	Sprinkling of water to control dust at camp and construction site.		Sprinkling of water to control dust emissions at site during whole construction period.
4.	Handling of solid waste	Includes the cost of collection, segregation, transportation, disposal and management of domestic, commercial and construction wastes		Rs. 200,000 per month for 18 months to collect construction waste from all the active sites on daily basis.
5.	Health and Safety of Workers	For 100 employees for the provision of dust masks, safety shoes, gloves, first aid box, ear plugs, safety helmets and safety jackets (Hi Vis) and provision of dust bins, warning tap, safety cones, safety harness belts and safety sign boards.		
6.	Environmental / HSE Expert 16 years of Education in Environmental sciences or Environmental Engineering With minimum 5 year of relevant experience	HSE Expert to monitor / conduct all HSE related activities e.g. TBTs, PPEs, housekeeping, safety signage, emergency preparedness, Instrumental monitoring and visual monitoring etc. during construction phase		--
7.	Instrumental Environmental Testing	Ambient air, drinking water, surface water and noise Monitoring Schedule is attached in		Refer to Table 1-2 and 1-6 for detailed schedule of environmental testing during construction and operation phase.



8.	environmental and social training	Short Seminars, Courses, Trainings and Lectures on Environment, Social and Occupational, Health and Safety constituents and components during construction phase).		
09.	Tree Plantation	If any tree cutting carried out the the new tree shall be plant at the 1:10		Tree Cutting will not be encouraged.





Ravi Urban Development Authority

RAVI RIVERFRONT URBAN DEVELOPMENT PROJECT



CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

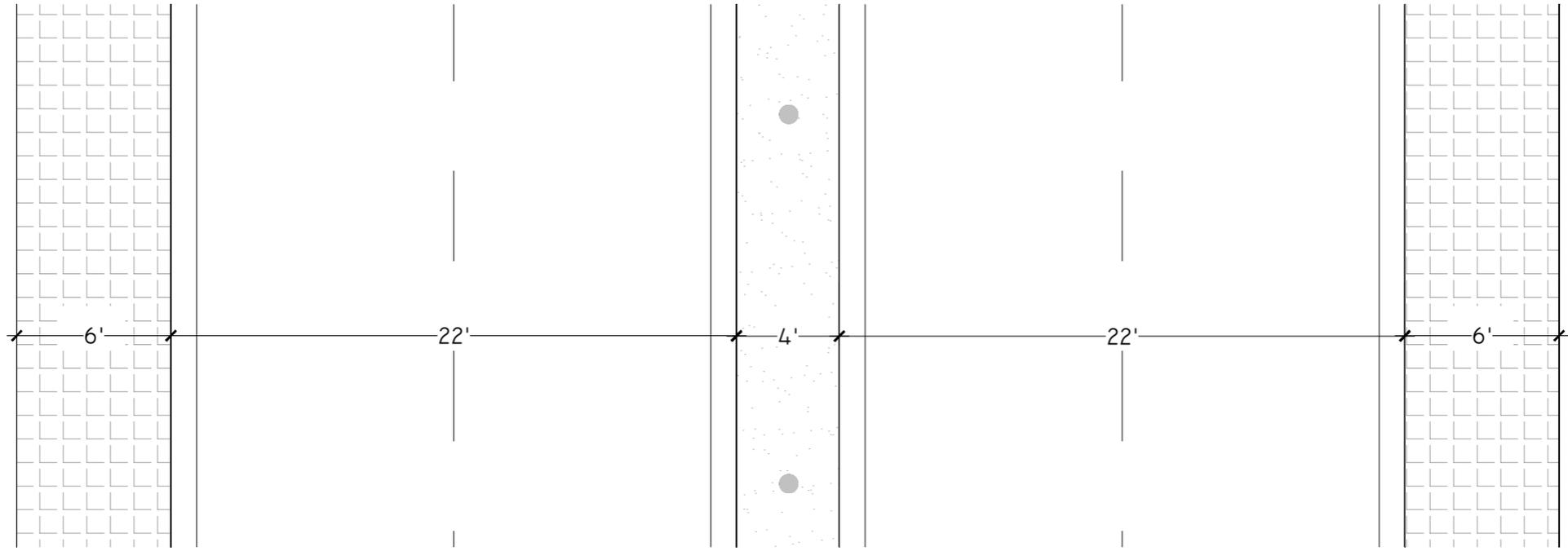
BIDDING DOCUMENTS – VOLUME IV DRAWINGS

December 2025

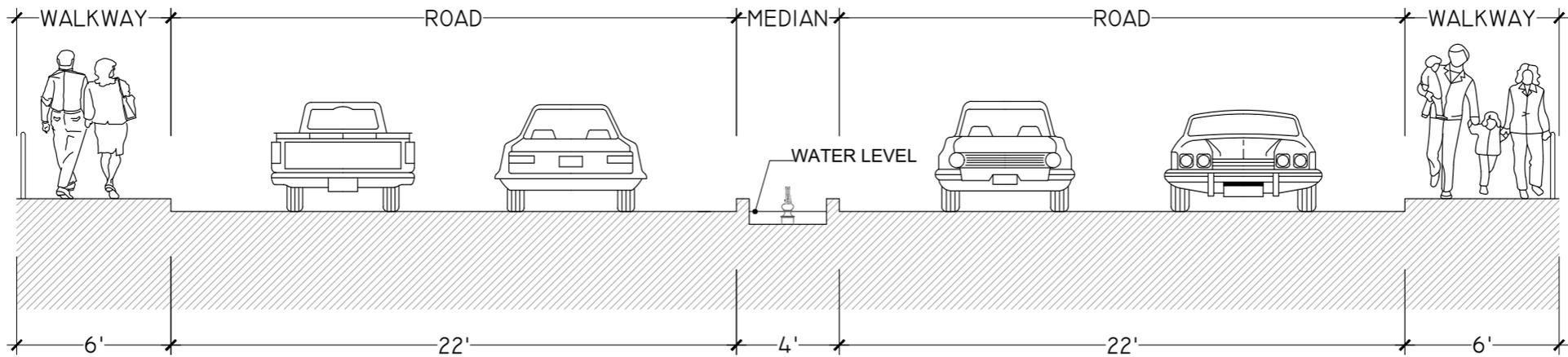


National Engineering Services Pakistan (Pvt.) Limited

Clearance Code	4678/13/BD/1225	Doc. No.	4678 – 04	Rev No.	00
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PLAN



ELEVATION

CLIENT :-

RAVI URBAN DEVELOPMENT AUTHORITY (RUDA)

CONSULTANT :-

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.
 HEAD OFFICE - NESPAK HOUSE, I-C, BLOCK-N, MODEL TOWN EXTENSION, LAHORE, PAKISTAN.

04				DRAWN	ADEEL AFZAL
03				SUBMITTED	
02				RECOMMENDED	
01				CHD./VER.	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED	

PROJECT TITLE :-
DETAIL FOR BRIDGE OVER RAVI RIVER

DRAWING TITLE :-
 PLAN, ELEVATION

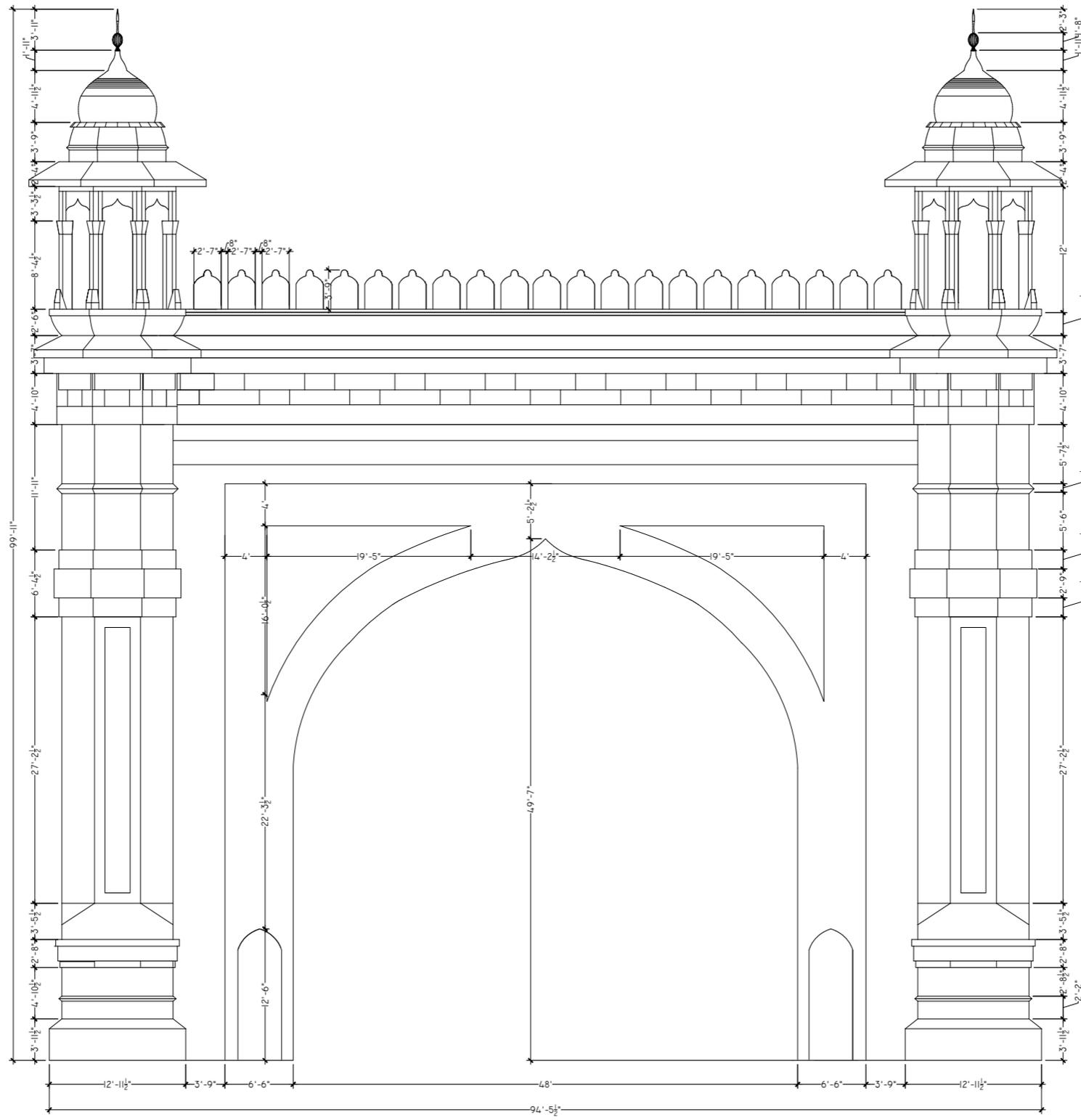
DATE: 30 OCTOBER, 2025
 DWG. NO.: A-01

ORIENTATION



SCALE: NTS

REV: 0



ELEVATION

CLIENT :-

RAVI URBAN DEVELOPMENT AUTHORITY (RUDA)

CONSULTANT :-

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.
 HEAD OFFICE - NESPAK HOUSE, I-C, BLOCK-N, MODEL TOWN EXTENSION, LAHORE, PAKISTAN.

REV.	DATE	DESCRIPTION	APPROVED	DRAWN	ADEEL AFZAL
04				SUBMITTED	
03				RECOMMENDED	
02				CHD./VER.	
01				APPROVED	

PROJECT TITLE :-
DETAIL OF ENTRANCE GATE OF RAVI BRIDGE

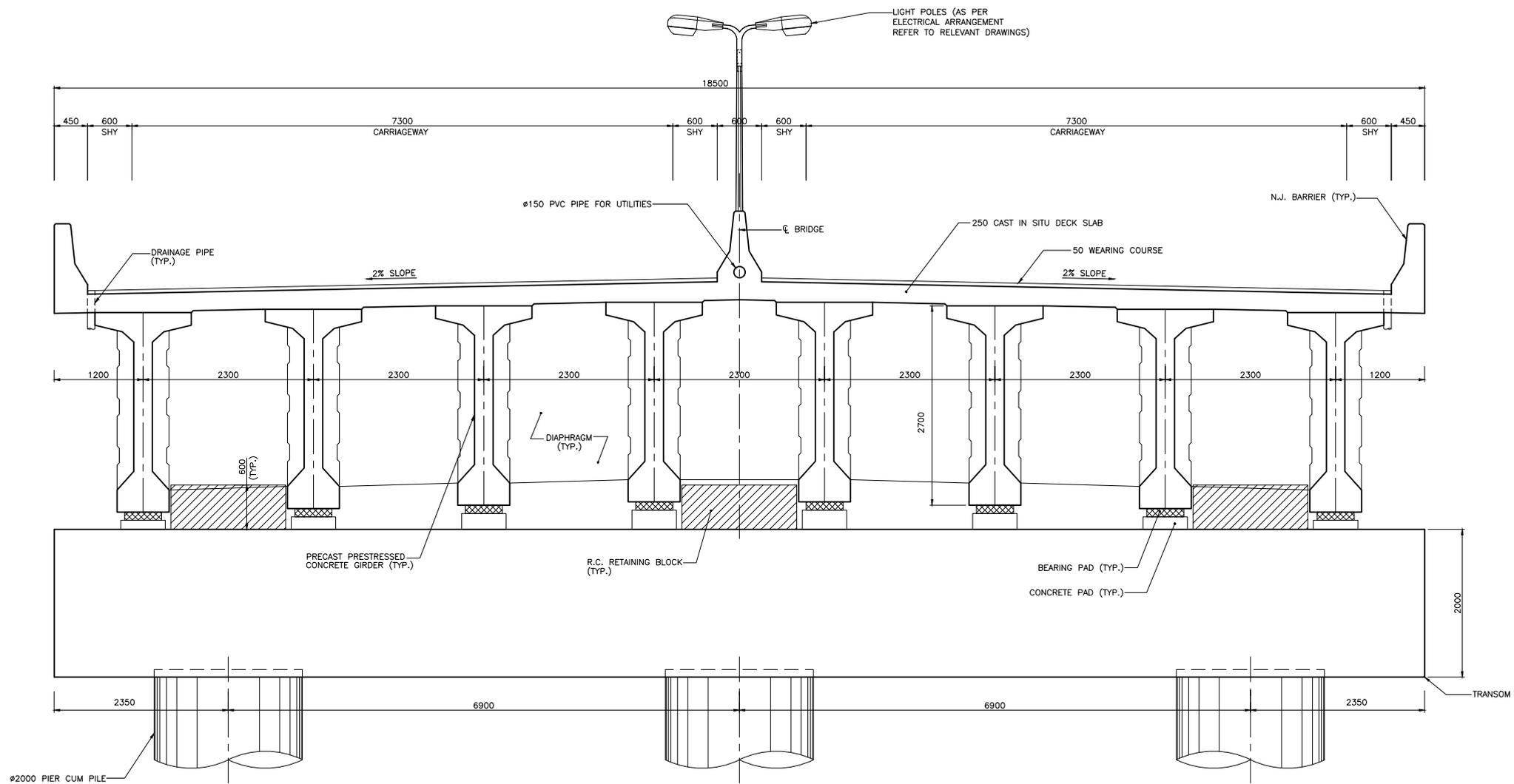
DRAWING TITLE :-
 PLAN, ELEVATION

DATE: 30 OCTOBER, 2025
 DWG. NO.: A-01



SCALE
 NTS

REV. 0



TYPICAL CROSS SECTION

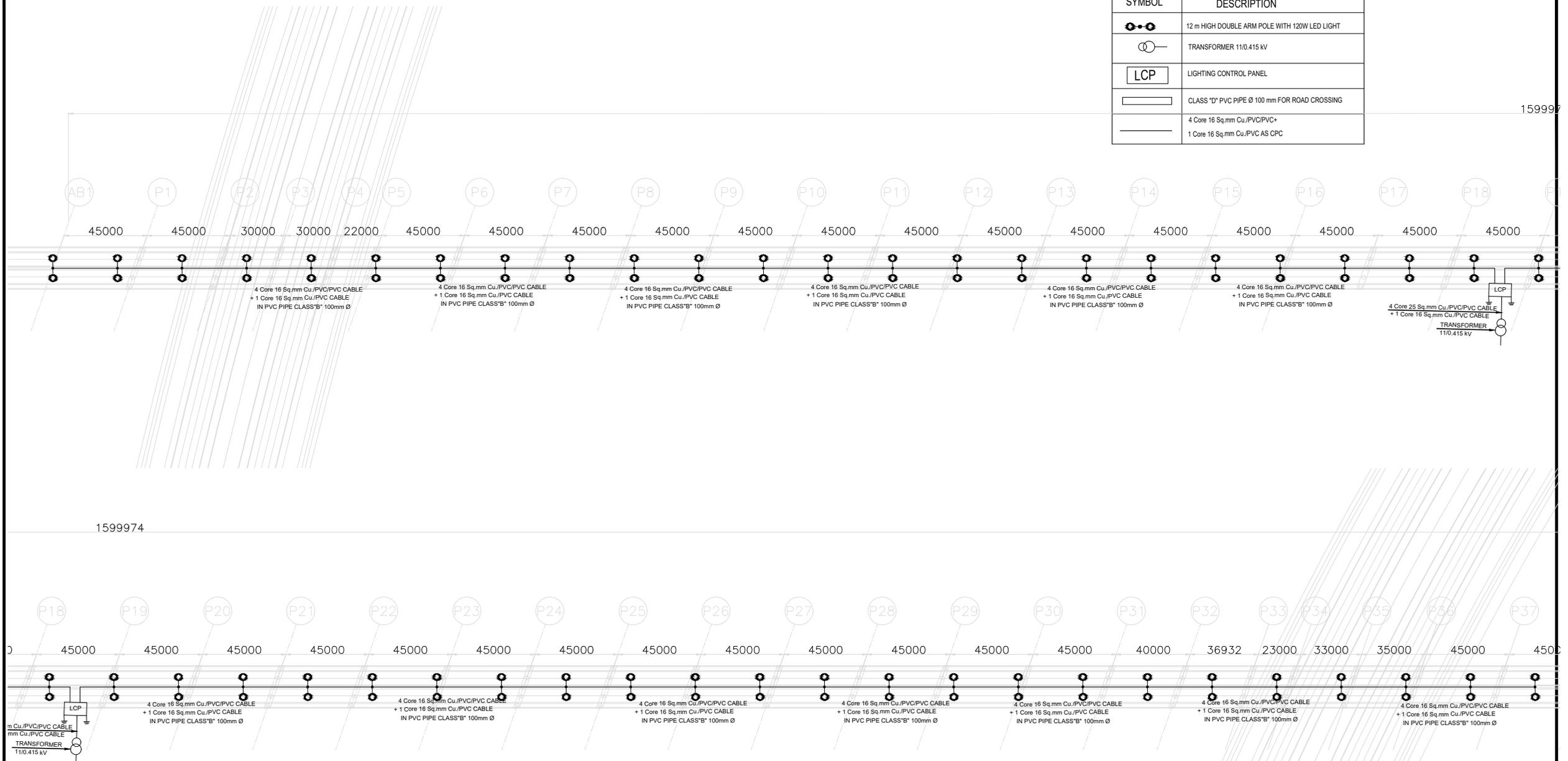
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

CLIENT  RAVI URBAN DEVELOPMENT AUTHORITY, LAHORE	CONSULTANT  NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. HEAD OFFICE:- NESPAK HOUSE, I-C, BLOCK-N, MODEL TOWN EXTENSION, LAHORE, PAKISTAN.	04				DRAWN	MUBEEN	PROJECT CONSTRUCTION OF LANDMARK BRIDGE AT RRUDP	Title BRIDGE FOR JAHANGIR'S TOMB GENERAL ARRANGEMENT TYPICAL CROSS SECTION	SCALE 1:100
		03				SUBMITTED				
		02				RECOMMENDED				
		01				CHD./VER.				
		REV.	DATE	DESCRIPTION	APPROVED	APPROVED			DATE	REV.
									OCTOBER, 2025	
									DRAWING No.	
									4531/036/PD/G--	

LEGEND:-

SYMBOL	DESCRIPTION
	12 m HIGH DOUBLE ARM POLE WITH 120W LED LIGHT
	TRANSFORMER 11/0.415 kv
	LIGHTING CONTROL PANEL
	CLASS "D" PVC PIPE Ø 100 mm FOR ROAD CROSSING
	4 Core 16 Sq.mm Cu./PVC CABLE
	1 Core 16 Sq.mm Cu./PVC AS CPC



NOTE:-

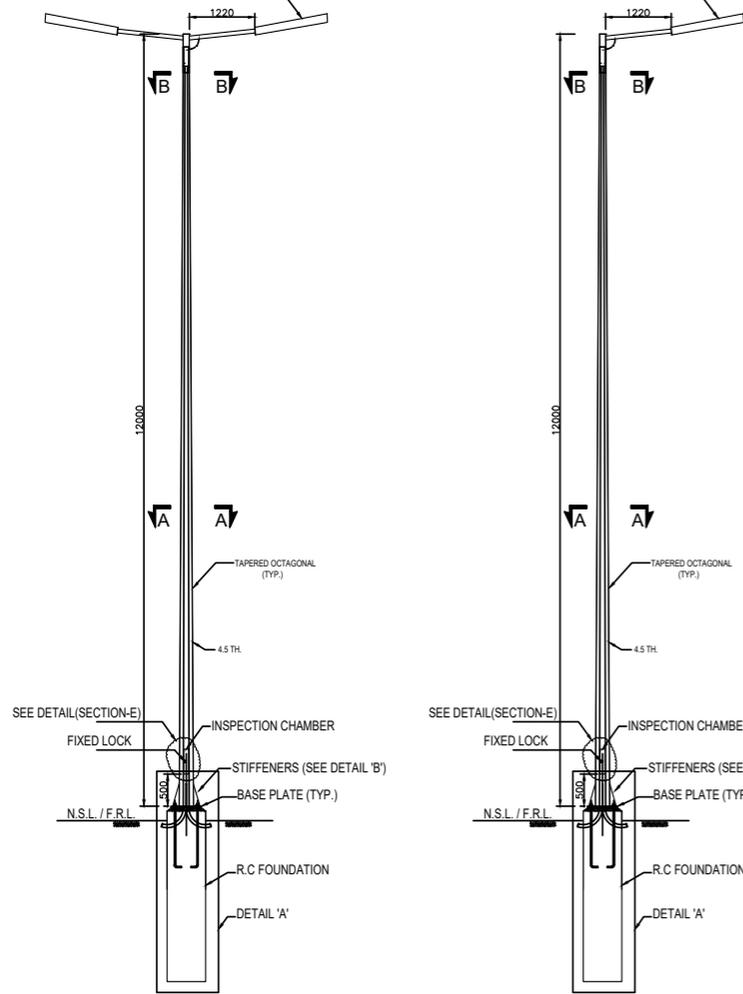
1. THIS PLAN HAS BEEN MADE EXCLUSIVELY FOR LED ROAD LIGHTING SYSTEM AND SHALL NOT BE APPLICABLE FOR SODIUM LIGHTING SYSTEM.
2. 4 CORE 16 Sq.mm Cu./PVC/PVC CABLE ALONG WITH 1 CORE 16 Sq.mm Cu./PVC SHALL BE LAID/PULLED IN 100mm Dia CLASS "B" PIPE ALREADY LAID IN THE BARRIERS/MEDIAN/CURB STON/TRENCH.
3. THE LOCATION OF THE TRANSFORMERS SHOWN IN THE LAYOUT PLAN IS TENTATIVE. THE TRANSFORMERS SHALL BE PLACED ON THE SITE ON WHICH EXISTING 11kv NETWORK IS AVAILABLE.
4. POLE TO POLE SPACING SHALL BE 33-35 m.

* i-25kVA POLE MOUNTED TRANSFORMER SHALL BE INSTALLED IN CASE, 11kv OVERHEAD NETWORK IS AVAILABLE.
OR
ii-100kVA PAD MOUNTED TRANSFORMER ALONGWITH UNDERGROUND 11kv NETWORK SHALL BE INSTALLED INCASE 11kv OVERHEAD NETWORK IS NOT AVAILABLE.

CLIENT RAVI URBAN DEVELOPMENT AUTHORITY	CONSULTANT NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD. HEAD OFFICE:- NESPAK HOUSE, I-C, BLOCK-N, MODEL TOWN EXTENSION, LAHORE, PAKISTAN.	04				DRAWN	SA	PROJECT CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER	SCALE N.T.S
		03				SUBMITTED			
		02				RECOMMENDED			
		01				CHD./VER.			
		REV.	DATE	DESCRIPTION	APPROVED	APPROVED			
		DATE		DRAWING No.		REV.			
		OCT, 2025		4537/161/CD/5E001		0			

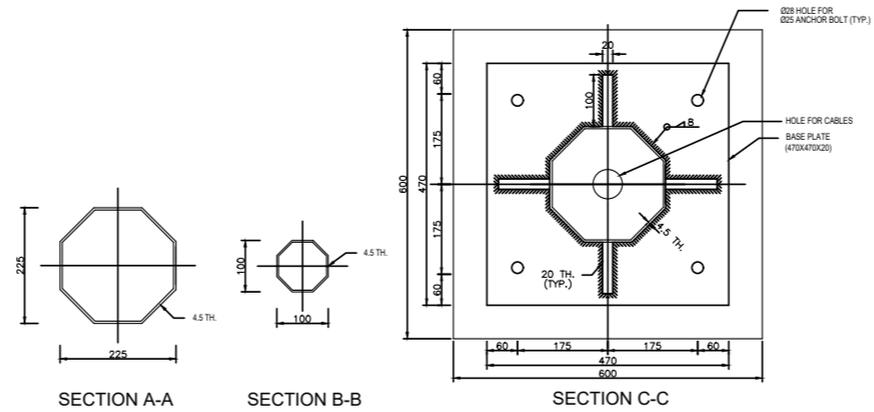
LUMINAIRE AS PER SPEC. & 800 THE LUMINAIRE SHALL BE APPROVED BY THE ENGINEER BEFORE ORDERING/ INSTALLATION

LUMINAIRE AS PER SPEC. & 800 THE LUMINAIRE SHALL BE APPROVED BY THE ENGINEER BEFORE ORDERING/ INSTALLATION



DOUBLE LUMINAIRE HOT DIP GALVANIZED STEEL OCTAGONAL POLE

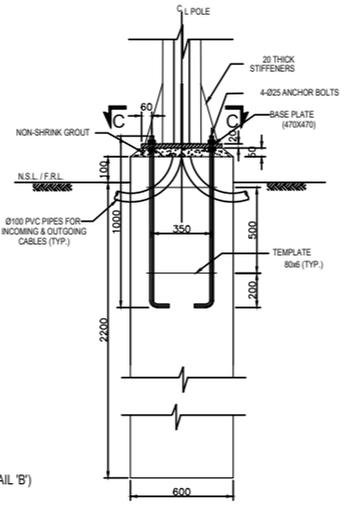
SINGLE LUMINAIRE HOT DIP GALVANIZED STEEL OCTAGONAL POLE



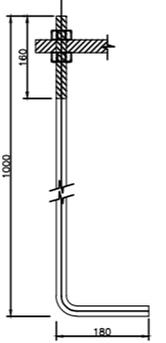
SECTION A-A

SECTION B-B

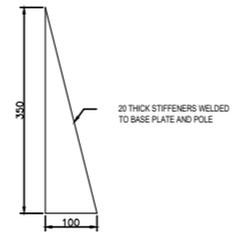
SECTION C-C



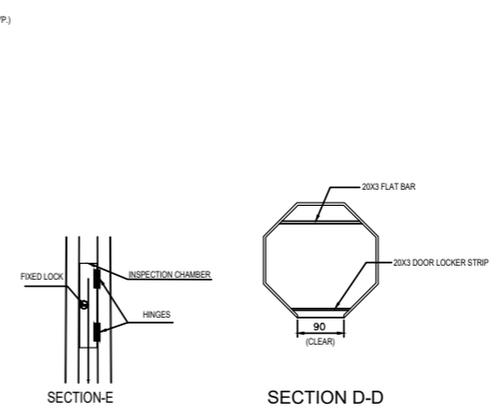
DETAIL-A (CONCRETE OUTLINE)



ANCHOR BOLT

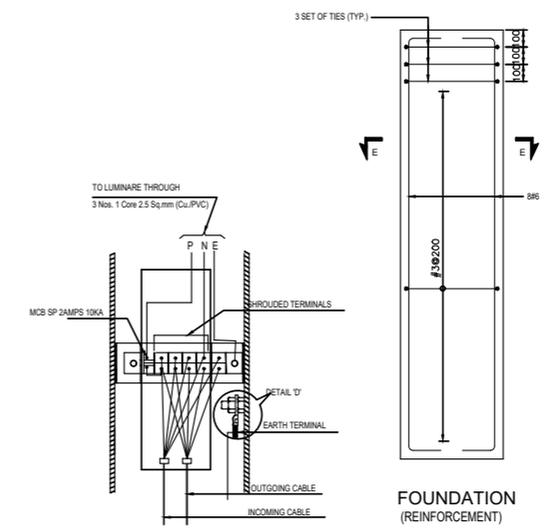


DETAIL-B



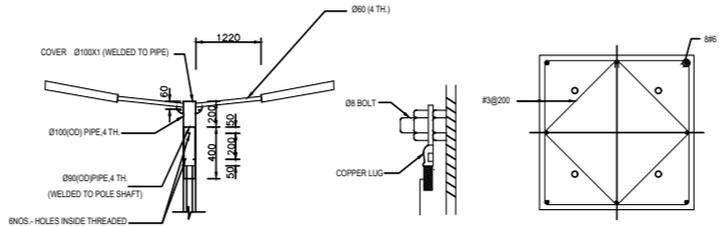
SECTION-E

SECTION D-D



DETAIL OF INSPECTION CHAMBER

FOUNDATION (REINFORCEMENT)



DETAIL-C

DETAIL-D

SECTION E-E

NOTES

- FOR GENERAL NOTES REFER DRAWING NO. G001.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
- UNLESS OTHERWISE NOTED, CONCRETE SHALL BE CLASSIFIED AS FOLLOWS. CONCRETE CLASS 28 DAYS (15x30 CM) CYLINDER STRENGTH Kg/sq. Cm REINFORCED A 210 (3000 psi)
- THE STEEL FOR POLE & BASE PLATE SHALL BE OF YIELD STRENGTH OF 350MPa(50Ksi). & SHALL CONFORM TO ASTM A36 STEEL.
- THE ANCHOR BOLTS SHALL CONFORM TO ASTM A307.
- ALL WELDING SHALL CONFORM TO THE APPLICABLE PROVISIONS OF A.W.S (AMERICAN WELDING SOCIETY) CODE.
- HOT DIP GALVANIZATION SHALL CONFORM TO BS EN ISO 1461 (IN SIDE & OUT SIDE) OR IN ACCORDANCE WITH ASTM A123 AND A325.

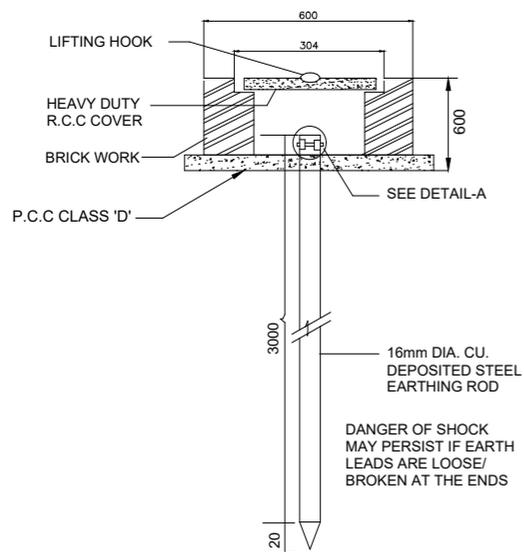
CLIENT
 RAVI URBAN DEVELOPMENT AUTHORITY

CONSULTANT
 NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.
 HEAD OFFICE:- NESPAK HOUSE, I-C, BLOCK-N, MODEL TOWN EXTENSION, LAHORE, PAKISTAN.

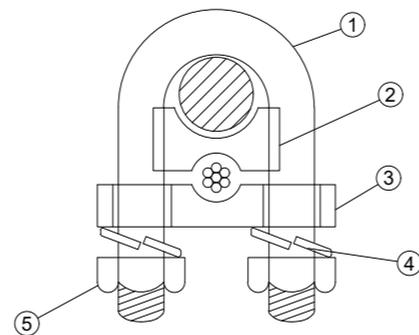
04				DRAWN	SA
03				SUBMITTED	
02				RECOMMENDED	
01				CHD./VER.	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED	

PROJECT
 CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

DETAILS OF 12M CONICAL OCTAGONAL LIGHTING POLE WITH SINGLE & DOUBLE ARM BRACKET		SCALE N.T.S
DATE OCT, 2025	DRAWING No. 4537/161/CD/5E002	REV. 0

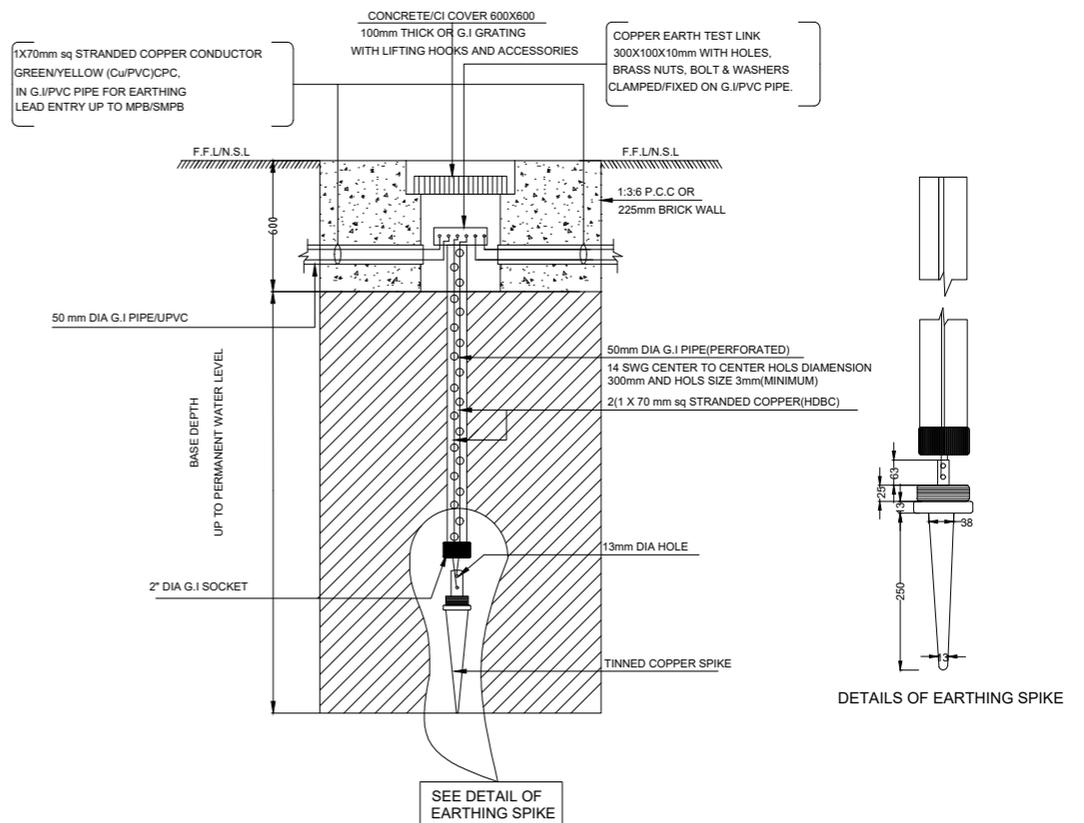


ROD TYPE EARTH POINT DETAIL



DETAIL -'A'

ITEM NO.	ITEM NAME	MATERIAL
1	U-BOLT	MILD STEEL
2	SPACER	CAST IRON
3	BASE	MILD STEEL
4	SPRING WASHER	CARBON STEEL
5	NUT	MILD STEEL



EARTHING SYSTEM (BORE TYPE)

NOTE:-

EARTH PIT DIMENSION: 600X600X600

NOTES:-

1. ALL DIMENSIONS ARE IN MM AS SHOWN ON DRAWING.
2. THIS DRAWING IS FOR INDICATIVE DESIGN MODEL AND SHOULD BE READ IN CONJUNCTION WITH SPECIFICATIONS AND ITEMS OF BILL OF QUANTITIES.
3. EARTH BORE SHALL BE MADE AT 2000MM (2M) AWAY FROM FOUNDATION/STRUCTURE.
4. DISTANCE BETWEEN TWO EARTH BORES SHALL NOT BE LESS THAN 3000MM (3M)
5. CONNECTION SHALL BE BOLTED WITH THIMBLES, BRASS NUTS, BOLTS/WASHER ETC.
6. CONTRACTOR SHALL MEASURE EARTHING RESISTANCE IN THE PRESENCE OF SITE ENGINEER, FOR FINAL ACCEPTANCE.
7. THE VALUE OF EARTH RESISTANCE SHALL BE INCORPORATED IN FINAL AS-BUILT DRAWINGS.

CLIENT

RAVI URBAN DEVELOPMENT AUTHORITY

CONSULTANT

NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LTD.
 HEAD OFFICE:- NESPAK HOUSE, I-C, BLOCK-N, MODEL TOWN EXTENSION, LAHORE, PAKISTAN.

04					
03					
02					
01					
REV.	DATE	DESCRIPTION	APPROVED	APPROVED	

DRAWN	SA
SUBMITTED	
RECOMMENDED	
CHD./VER.	
APPROVED	

PROJECT
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

SCALE N.T.S	
DATE OCT, 2025	DRAWING No. 4537/161/CD/5E003
REV. 0	



Ravi Urban Development Authority

RAVI RIVERFRONT URBAN DEVELOPMENT PROJECT



CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

BIDDING DOCUMENTS - VOLUME II

BILL OF QUANTITIES

December 2025



National Engineering Services Pakistan (Pvt.) Limited

Clearance Code	4678/13/ED/1225	Doc. No.	4678-04	Rev No.	00
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BILL OF QUANTITIES (BOQ)

PREAMBLE

1. The Bill of Quantities shall be read in conjunction with the Conditions of Contract, Specifications and Drawings.
2. The quantities given in BOQ are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work executed and measured by the contractor and verified by the Engineer and valued at the rates entered in the BOQ and price finalized in the Contract, where applicable, and otherwise at such rates and prices as the Engineer may fix as per Contract.
3. The rates and prices entered in the Bill of Quantities shall, except insofar as it is otherwise provided under the Contract include all the cost of Contractor's plant, labor, supervision, material, execution, insurance, profit, taxes and duties, together with all general risk liabilities and obligations set out or implied in the contract. Furthermore, all duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause, as on the month during which the last date of submission of bids falls, shall be included in the rates & prices and the total Bid price submitted by the Bidder.
4. A rate or price shall be entered against each item in the Bill of Quantities, whether quantities are stated or not. The cost of items against which the Contractor will have failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.
5. The whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities, and where no items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related items of the Works.





RIVER RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER



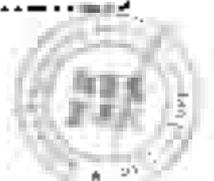
MAIN SUMMARY

Bill No.	Description of Work	Amount in (Rs.)
1	At Grade Improvement Lahore Ring Road	
2	Construction of Bridge	
3	Improvement of Bund Road / Widening	
4	Periphery Road along Tomb to Main Parking	
5	Construction of Main Parking	
6	Improvement of Existing Parking	
7	Pedestrian Bridge	
8	Landscape, Hardscape	
9	Shops	
	TOTAL CONSTRUCTION COST	
	Add @1% PST of Construction Cost	
	TOTAL COST	





RAJPUTAN URBAN DEVELOPMENT AUTHORITY
**AT GRADE
IMPROVEMENT
LAHORE RING
ROAD**
RUDA

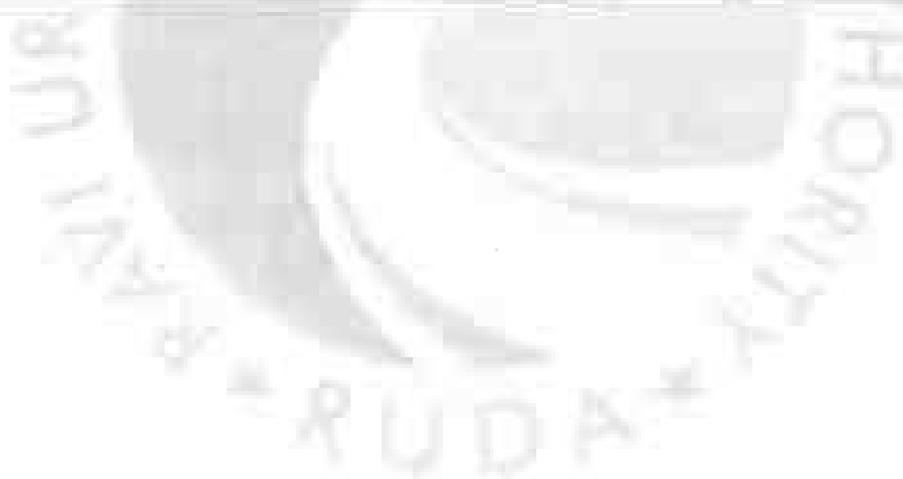




RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
AT GRADE IMPROVEMENT LAHORE RING ROAD (BILL NO.1)
SUB SUMMARY



Bill No.	Item Description	Amount in (Rs.)
1.1	Earthwork and Allied Activities	
1.2	Sub-base & Base Course	
1.3	Surface Courses & Pavement	
1.4	Accessory Works	
1.5	Drainage Works	
1.6	Dismantling of Existing Structure	
1.7	Electrical Works	
1.8	Toll Plaza	
	TOTAL CONSTRUCTION COST	



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
AT GRADE IMPROVEMENT LAHORE RING ROAD (BILL NO.1)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 1.1	Earthwork and Allied Activities				
1	Jungle clearance and removing within 100 ft. (30 m)				
	a) Ordinary	1000 Sq ft	19,830.00		
	b) Heavy	1000 Sq ft	8,070.00		
2	Compaction of earthwork with power road roller, including ploughing, mixing, moistening earth to optimum moisture content in layers, etc. complete				
	i) 95% to 100% maximum modified AASHTO dry density.	1000 Cft	48,205.00		
	ii) 90% maximum modified AASHTO dry density	1000 Cft	20,659.00		
3	Earthwork excavation undressed lead upto a single throw of Kass, ghazrah or shovel:-				
	by in ordinary soil	1000 Cft	11,111.00		
4	Earthwork in ordinary soil for embankments, including ploughing, mixing and compaction by mechanical means at optimum moisture content and dressing to designed section including all lead and lift, complete in all respects:-				
	i) 95% to 100% maximum modified AASHTO dry density	Cft	29,829.00		
	ii) With 90% Compaction of AASHTO dry density	Cft	12,794.00		
5	Earthwork with Borrow in ordinary soil for embankments, including ploughing, mixing and compaction by mechanical means at optimum moisture content and dressing to designed section including all lead and lift, complete in all respects:-				
	With 95% to 100% Compaction of AASHTO dry density.	Cft	452,244.00		
	With 90% Compaction of AASHTO dry density.	Cft	193,809.00		
6	Providing and laying good quality local sand cushion from approved source (compacted in layers not exceeding 8" thickness) by mechanized means including the cost of front end loader, vibratory roller and all lead and lifts, dressing, watering complete in all respect as approved and directed by the Engineer	Cft	23,681.00		
Total Cost					



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
AT GRADE IMPROVEMENT LAHORE RING ROAD (BILL NO.1)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 1.2	Sub-base & Base Course				
1	Providing and laying sub-base course of stone product of approved quality and grade. Including placing, mixing, spreading and compaction of sub-base material to required depth, camber, grade to achieve 100% maximum modified AASHO dry density, including carriage of all material to site of work except gravel and aggregate.				
	ii) Crushed stone aggregate.	Cm	46,768.00		
2	Providing and laying (WBM) base course of crushed stone aggregate of approved quality and grade, and supply and spreading of stone screening, including placing, mixing, spreading and compaction of base course material to required depth, camber and grade to achieve 100% maximum modified AASHO dry density, including carriage of all materials to site of work except gravel and aggregate.	Cm	50,875.00		
Total Cost					

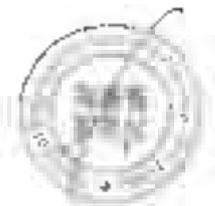




RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
AT GRADE IMPROVEMENT LAHORE RING ROAD (BILL NO.1)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
BMI No. 1.3	Surface Courses & Pavement				
1	Providing and laying bituminous priming coat using 10 lbs kerosene oil and 10 lbs binder per 100 Sq. ft. or 0.5 Kg kerosene and 0.5 Kg binder per square metre.	100 Sq. ft.	51,654.00		
2	(Asphaltic Base Course) Providing and laying plant premixed bituminous carpet, including compaction and finishing to required camber, grade and density. ii) 4% Bitumen	Cft	25,437.00		
3	Providing and laying bituminous tack coat using 10 lbs. of bitumen per 100 Sq. ft. (0.49 Kg of bitumen per sq.m.)	100 Sq. ft.	103,308.00		
4	(Asphaltic Wearing Course) Providing and laying plant premixed bituminous carpet, including compaction and finishing to required camber, grade and density iii) 4.5% Bitumen	Cft	8,491.00		
Total Cost					





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
AT GRADE IMPROVEMENT LAHORE RING ROAD (BILL NO. 1)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
BILL No. 14	Auxiliary Works				
1	Providing and laying Tuff pavers, having 7000 PSI crushing strength of approved manufacturer, over 2" to 3" sand cushion & grouting with sand in joints & finishing to require slope, complete in all respect (50% Grey / 50% Coloured)				
	b) 60-mm thick	Sq	0.838.00		
2	Painting Traffic Lane Marking of specified width (1.5mm thick), with Thermoplastic (TP) Paint including Glass Beads, complete in all respect, as approved and directed by Engineer incharge, (i) (8" wide)	Rt	3,125.00		
3	Painting Arrows & Zebra crossings (1.5mm thick), with the Thermoplastic (TP) Paint including Glass Beads, complete in all respect	Sq	828.00		
4	Providing & fixing Cat Eyes of size 4" x 4" x 3/4" duly casted with specified material having plastic strip containing retro-reflective glass beads of color white/red/yellow having specified reflections, quality & shape to the cost of self built in 12mm dia x 120mm long steel zinc plated nail (firm to road with epoxy) hammering with separate nail complete. a) Acrylic material (2) Line-Directional (ii) 43 Glass beads a side	Nos	359.00		
5	Providing & fixing Road Stiles of aluminum alloy (raised profile) of specified size with Diamond grade reflectors on both sides etc. complete b) Dual-Directional (ii) 6" x 4" x 1.75"	Nos	11.00		
6	Providing and fixing precast Edge Kerb Stone (100mm to 150mm thick), of 3500 PSI Compressive Strength, embedded in PCC 1:2:4 over lean concrete 1:4:8 etc. Complete in all respect b) With Painting (iii) (100x150x450mm high)	Rt	5,168.00		
7	Providing and laying Kerb Block / RCC Barrier of Concrete having compressive strength of 4000 PSI of required size with Slip form Paver/ power kerber machine, batching plant excluding cost of additive / super plasticizer steel reinforcement and its labour for bending and laying in position as specified etc. complete in all respect. b) R.C.C Barrier i) Single Face	Ck	100.00		
9	Providing fabrication and fixing pole mounted Direction Board / delineator of any shape and size, with specified Sheet and thickness supported with G.I Channel, (excluding the cost of vertical post and painting) etc complete in all respect. a) G.I Sheet 14 SWG CIRCULAR/TRIANGULAR 3.4 ft size	Sq	75.00		



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAWI RIVER
AT GRADE IMPROVEMENT LAHORE RING ROAD (BILL NO.1)

BILL OF QUANTITIES

Br. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
9	Providing, fabrication and fixing pole mounted Direction Board / road delineator of any shape and size, with specified Sheet and thickness, supported with G.I Channel. (excluding the cost of vertical post and painting) etc complete in all respect. II) RECTANGULAR SHAPE				
	a) 3' x 4' size	Sft	65.00		
	b) 5'4" x 12' size	Sft	183.00		
10	If 3mm thick Aluminium sheet is used instead of G.I Sheet, following composite rates shall be added.				
	a) 3' x 4' size	Sft	75.00		
	b) 12' x 48' size	Sft	65.00		
	c) 12' x 120' size	Sft	45.00		
11	Providing, fabrication and fixing Vertical Post comprising of minimum quality G.I Pipe of specified diameter, including the cost of clamping arrangements, top cover, hook fasts, PCC 1:2:4 footing of specified depth and excavation etc complete in all respect, as approved and directed by the engineer incharge				
	a) 3 inch diameter (footing 1'5"x1'5")	Rft	33.00		
	b) 4 inch diameter (footing 1'7"x1'7")	Rft	33.00		
	(d) 5 inch diameter (footing 1'7"x1'5"x6")	Rft	39.00		
	e) 6 inch diameter (footing 2'0"x1'7")	Rft	39.00		
12	Lettering and printing of signages/ direction boards/ road delineators of any colour by machine i/c cost of Digital Lettering, Lamination & pasting etc. Complete in all respect. Diamond Glass Type	Sft	323.00		
Total Cost					



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
AT GRADE IMPROVEMENT LAHORE RING ROAD (BILL NO.1)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 1.5	Drainage Works				
1	Earthwork excavation in open cutting for storm water channels, drains, siltage drains in open areas, roads, streets lanes including under pinning of walls and shoring to protect existing works, shuttering and timbering the trenches, dressed to designed level and dimensions, trimming, removal of surface water from trenches, back filling and surplus excavated material disposed of and dressed with n 50 ft (75 m) lead. 1) Upto 5' (1.5 meter) depth 1) Upto 5' (1.5 meter) depth B) By Mechanical means Ordinary	1000 Cft	40,805.00		
2	Supplying and filling sand under floor or plugging in wells	100 Cft	812.00		
3	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate) (i) Rate 1-1-8	Cft	2,587.00		
4	Placing, compacting, finishing and curing of concrete using Ordinary Portland Cement / Sulphate resisting cement / Slag cement as may be required, including screening, washing of aggregate and mixing of constituents using batching plant. Transportation by transit mixer, pouring with pump in the required proportions to achieve a nominal cylindrical strength in the field as per ACI 214, with the specified consistency, in the cost of churning, compaction with vibrator, excluding the cost of Admixture, as approved and directed by the Engineer Incharge				
4	(a) Reinforced cement concrete in roof slab, beams, columns, lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects. (i) 4000 PSI	Cft	4,520.00		
	(b) Retaining / Sliver walls laid in situ or precast laid in position, or prestressed members cast (Formwork on both sides) (i) 4000 PSI (ii) Upto 9" thick	Cft	3,641.00		
	(c) Substructure (Foundations, Raft, Sillp and Footing Beams) (iv) 4000 PSI	Cft	4,520.00		
5	Fabrication of mild steel reinforcement for cement concrete including cutting, bending, tying in, making joints and fastenings including cost of binding wire and labour charges for bending of steel reinforcement (also includes removal of rust from bars): (b) Deformed bars (i) Grade III	Tons	54.35		
6	Bitumen coating to plastered or cement concrete surface - (i) 20 lbs. per 100 sq ft. (9.37 kg per sq m)	100 Sft	211,721.00		
7	Providing and embedding 10" (250mm) with PVC water stopper in expansion joints of RCC structures (Retaining walls, water tanks Slabs) complete in all respect, 10mm Thick	Rft	3,681.00		





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
AT GRADE IMPROVEMENT LAHORE RING ROAD (BILL NO.1)
BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
8	Filing expansion joints with bitumen, sand & saw dust n	Rft	400.00		
Total Cost					



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
AT GRADE IMPROVEMENT LAHORE RING ROAD (BILL NO.1)

BILL OF QUANTITIES

Er. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
1.6	Dismantling of Existing Structure				
1	Dismantling cement concrete plain 1:2.4 plain	100Cft	1100.00		
	Dismantling cement concrete plain 1:4.8 plain	100Cft	3,750.00		
2	Dismantling Tull tile	Per Sft	1,000.00		
	Dismantling wall work in lime or cement mortar	100Cft	1,750.00		
4	Dismantling cement concrete reinforced, separating reinforcement from concrete, cleaning and straightening the same.	100Cft	4,000.00		
5	Removal of Kerb Stone	RR	1,000.00		
6	Cold milling of asphalt layer/concrete surface of specified thickness, loading of debris onto haul trucks via conveyor system and disposal at appropriate place to the chargee of self propelled milling machine of specified size, dumper, pump, water lorry, compressor and Tungsten Carbide Bits etc complete in all respect as approved by Engineer incharge ii) 0 - 2" thick	Per Sq	54,000.00		
7	Dismantling and removing road milling	100Cft	3,465.00		
8	Dismantling and removing road pavement, etc., including screening and stacking of byproducts upto one chain lead in metre	100Cft	9,925.00		
9	Removal of unsuitable material from site.	Cft	33,339.00		
10	Removal of brick work	No.3	25,000.00		
11	Removal of steel	kg	2,000.00		
Total Cost					

R U D A



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
AT GRADE IMPROVEMENT LAHORE RING ROAD (BILL NO.1)

ELECTRICAL WORKS (1.7)

BILL OF QUANTITIES

Item No	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
	Design, supply, transportation, storage, installation, testing and commissioning of the following items of work, including all material, labour, tools and accessories etc. required for proper completion of each item as per specification, drawings and/or as directed by the Engineer.				
801(a)	12m high single arm octagonal shape electric street light pole, made of hot dipped 4.5 mm thick (7 SWG) galvanized steel, tapered from 225 mm at bottom to 100 mm at top, with 1500 mm x 80 mm x 4 mm thick flat arm for luminaire installation, duty G.I. welded with 470x470x20 mm plate with the help of 4 no triangular stiffeners 100x350x20 mm of GI sheet, with built in junction box with shutter & one (01) no. 2A SP MCB 10kA breaker. In the case of nuts & Jrap bolts, duty fixed in precast concrete foundation, foundation will be paid additionally as approved and directed by the Engineer incharge.	Each	16.00		
801(d)	Road Lighting Pole Foundation	Each	16.00		
	LED Road & Flood Light Fixtures				
802(a)	Road Lighting LED Cobra-head Luminaires of 120W and 120 lm/W conforming to IP 68 & IK 08 or above Philips/Osram/Thorn or NE approved equivalent manufacturer with corrosion resistant die casted Aluminum housing, silicon gasket in special groove, UV stable & scratch resistant synthetic materials, thermally hardened glass, complete with LED Chip (Philips Lumileds/Cree/Nichia/Osram make or equivalent) approved manufacturer), programmable LED driver (Harvard/COULUMATECH/Philips/VOS/SLQH/Schaeffler/Lightech make or approved equivalent manufacturer), minimum 10kV surge protection rating in the case of all accessories/ components required for proper operation, fully flexible for future upgradation and easy replacement for maintenance purposes, buxal cleaver charges as approved and directed by the Engineer incharge.	No.	16.00		
	Conduits / Pipes				
803(a)	PVC pipe/conduit Class-D 100 mm dia with accessories suitable for laying multi-core cables in trenches/directly buried on road crossings including excavation.	Rm	222.00		
803(b)	PVC pipe/conduit Class-B 100 mm dia with accessories suitable for laying multi-core cables in walls/bamers/structure.	Rm	93.00		
803(c)	PVC pipe/conduit Class-B 100 mm dia with accessories suitable for laying multi-core cables from pole to pole in trenches/directly buried including excavation.	Rm	497.00		
	Low Voltage Power Cables				
804 (a)	PVC insulated, PVC sheathed 4 core 25 mm ² , 600/1000 volt non-armoured copper conductor cable for service connection, in precast pipe/G.I. wire/trenches, etc. (rate for cable only)	Rm	222.00		
804 (b)	Single core 25mm ² PVC insulated copper conductor 450/750 volts cable in precast PVC pipe/M.S. conduit/G.I. pipe/wooden sap/batten/wooden casing or capping/G.I. wire/trenches (rate for cables only)	Rm	44.00		



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
AT GRADE IMPROVEMENT LAHORE RING ROAD (BILL NO.1)

ELECTRICAL WORKS (1.7)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
804(c)	PVC insulated, PVC sheathed 4 core 16 mm ² , 600*1000 volt non armoured copper conductor cable for service connection, in pre-laid size/G.I. wire/trenches, etc. (rate for cable only)	Rm	812.00		
804 (d)	Single core 16mm ² PVC insulated copper conductor 450/750 volts cable, in pre-laid PVC pipe/G.I. conduit/G.I. pipe/wooden strip/batten/wooden casing or capping/G.I. wire/trenches (rate for cables only)	Rm	1,034.00		
804(e)	3 Nos. 1 core 2.5 mm ² Cu/PVC 450/750 Voltage grade cable (stranded conductor) (imported copper shall be used. Verified documentary evidence for source of copper & PVC shall be furnished prior to manufacturing) from junction box to the fitting through the hollow of pole.				
i	For 12m Pole	No.	16.00		
805	Road lighting control panel with angle iron frame cladded 14 SWG, sheet steel enclosure having high quality powder coated paint, color RAL 7032. The LCP shall be complete with incoming and outgoing MCCBs Cu bus bars magnetic contactors photo-electric switches, meters indication lights, construction with IP 54 protection class door, locking arrangement etc. and all other accessories as required for quality work. MATERIAL 1 No. incoming 63 Amp. (adj.) TP. MCCB, 25 kA 4 No. outgoing 25 Amp. (adj.) TP MCCBs, 25 kA 2 No. outgoing 25 Amp. (adj.) TP MCCBs, 25 kA (Spare) 4 No. 32 Amp. magnetic contactor 2 No. 32 Amp. magnetic contactor (Spare) 3 No. photo-electric switches with timers and relays a) 1 No. ammeters 0-100 Amp. with selector switch (04 position) and CT of 100/5 Amp b) 3 No. induction lights c) 1 No. voltmeter with fuse and 7 position selector switch. d) 3 Ph. N & Earth copper bus bars (normal wiring & line-up terminals etc. Brass cable glands/accessories e) 1/8 Nos. Auto-Manual-OFF (3 position switches for operation in auto (with photocell) and normal (manual mode-photocell override) f) 1/8 Nos. ON & 0/8 Nos. OFF push button switches with indication lights g) Panel Light with limit Switch	Job	1.00		
806	Rod type Earth point comprising of 5/8" dia. (16 mm dia) 10 ft long copper coated M.S. rod driven in ground duty fixed with clamp with flanged earth test link copper plate (300x50x13mm), to the cost of brass nuts, spacers, bolts washers lugs etc. complete in all respect including earth pit and RCC cover	Each	1.00		
	Pole Mounted Transformer				





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
AT GRADE IMPROVEMENT LAHORE RING ROAD (BILL NO.1)

ELECTRICAL WORKS (1.7)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
807 As per WAPDA Specs.	Oil cooled type. Step down Power Transformer pole mounted of 25 kVA rating, 11/0.415 kV. In the cost of lifting hooks, thermometers, L.T & H.T pushing 5-8000, tap changer imported double float buchholz relay, 2 earthing terminals, roller wheels, connecting terminals for cables M.S. box on transformer in order to cover complete L.T side, all necessary materials required for connections on H.T & L.T side, rated voltage 11000/415/240 V impedance 4% or as specified by WAPDA/IEC system earth. Delta / Star, neutral solidly earthed. No Wapda testing charges complete in all respects made of PEL, Siemens, Transpower, Elctec or as approved and directed by the Engineer Incharge with three phase energy meter	nos	1.00		
809	MV Cable and Termination Kit				
a)	MV cable 3-core 120mm ² XLPE/PVC/ISWA/PVC cable with aluminum conductor voltage grade:8.7/15 kV	Rm	224.00		
b)	Providing and fixing installation indoor 3-core 120mm ² , 11KV, XLPE, heat shrink termination Kit complete in all respect as required.	Job	1.00		
c)	Providing and fixing installation outdoor 3-core 120mm ² , 11KV, XLPE, heat shrink termination Kit complete in all respect as required.	Job	1.00		
Total Cost					





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
AT GRADE IMPROVEMENT LAHORE RING ROAD (BILL NO 1)



BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 1.8	Total Price				
1	Excavation in foundation of building, bridges and other structures, including dogbetting, dressing & it's removal from site complete in all respects (i) By Excavator (ii) in ordinary soil	1000 Ch	4.746.00		
2	Brickwork and filling sand in floor, or in wells	100 Ch	1.136.50		
3	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate) (i) Ratio 1 : 4 : 8	100 Ch	426.00		
4	Placing, compacting, finishing and curing of concrete using Ordinary Portland Cement/ Sulphate resisting cement/ Slag cement as maybe required; including entering, washing of aggregates and mixing of constituents using batching plant, Transportation by transmixer, pouring pump in the required proportions to achieve a nominal cylindrical strength in the field as per AGI214, with the specified consistency. (ii) the cost of finishing, completion with V barrow, excluding the cost of materials as approved and directed by the Engineer incharge (i) Substructure (Foundations, Retaining walls and beams) (iv) 4000 PSI (b) Retaining / Shear walls laid in situ or precast laid in position, or precasted members cast (Formwork on both sides) (iv) 4000 PSI (i) Up to 9" thick	Ch	2 998.00		
		Ch	450.00		
5	Fabrication of steel reinforcement for cement concrete including cutting, bending, laying in position, making joints and fastenings including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars) - (i) Deformed bars (Grade III)	Tons	10.05		
6	Bitumen coating to plastered or cement concrete surface - (i) 20 lbs. per 100 Sq. ft. (9.07 Kg. per Sq. m)	100 Sq. ft.	4 058.00		
7	Fabrication of heavy steel work with angle, bars, flat iron, round iron and sheet iron for making trusses, girders, tanks, etc. including cutting, drilling, riveting, bending, assembling and fitting, including erection in position	Tons	24.14		
8	Preparing surface and painting with Matt/Glossy High chemical resistant / hard wearing Polysurethane paint (Epoxy Paint) by sprayer / Brush in the form of Primer coat, of material and labour complete in all respects as approved and directed by the Engineer incharge (i) Painting Steel (ii) Each and every sq. ft. (0.93 sq. m)	Sq. ft.	18 050.60		
9	Pre-fabricated place booth	Job	1.00		
10	Electrical Works	PS	1.00		2,000,000.00
Total Cost					





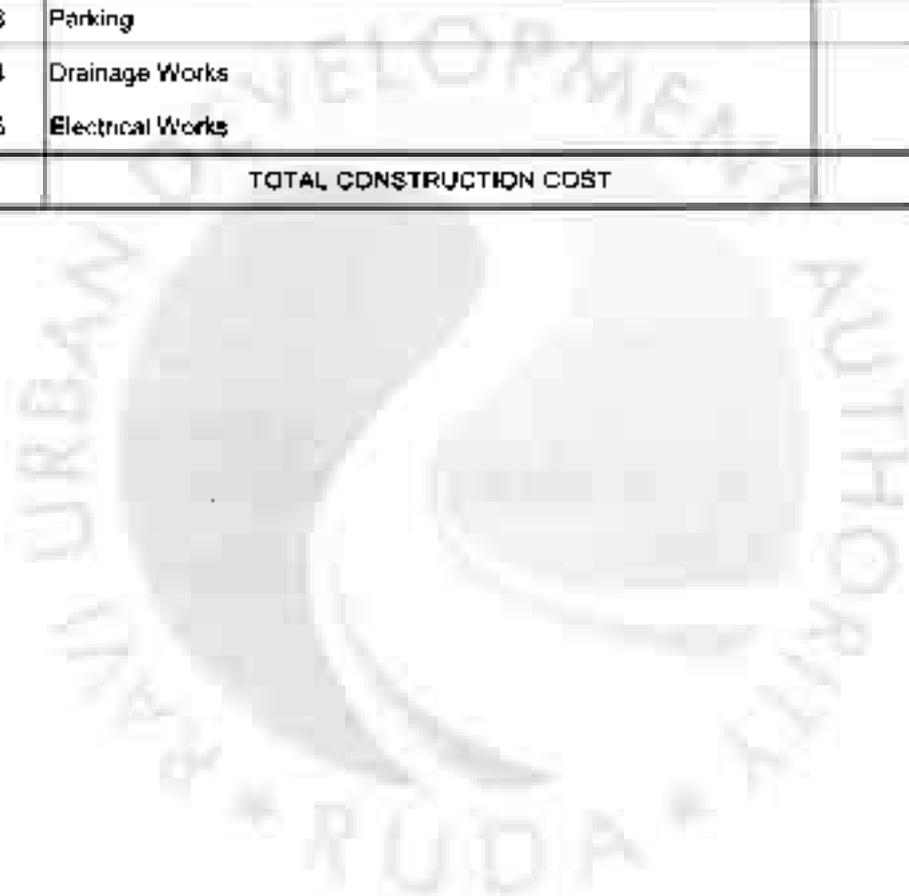


RIVER RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF BRIDGE AT JAHANGIR TOMB (BILL NO.2)



SUB SUMMARY

Bill No.	Description of Work	Amount In (Rs.)
2.1	Civil Works	
2.2	Gate, Fountain and Other Finishing Works	
2.3	Parking	
2.4	Drainage Works	
2.5	Electrical Works	
	TOTAL CONSTRUCTION COST	





RIVER RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF BRIDGE AT JAHANGIR TOMB (BILL NO.2)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 2.1	Bridge (Civil Works)				
1	Excavation in foundation of building bridges and other structures including dogpiling, dressing in layers around structure with excavated earth, watering and ramming lead upto max depth (30 m) depth upto 5 ft (1.5m). 2) a) By Excavator a) Ordinary soil	1000 CH	249.685.00		
2	Earthwork in ordinary soil for embankments, including ploughing, mowing and compaction by mechanical means at optimum moisture content and dressing to designed section including all lead and lift, complete in all respects - i) With 95% to 100% Compaction of AASHTO dry density. ii) With 90% Compaction of AASHTO dry density	Cft Cft	249.254.00 579,237.00		
3	Compaction of earthwork with power roller including ploughing, mowing, moistening with to optimum moisture content in layers, etc complete 95% to 100% maximum modified AASHTO dry density.	1000 Cft	53,925.00		
4	Providing and laying good quality / local sand cushion from approved source (compacted in layers not exceeding 8" thickness) by mechanical means including the cost of front end loader, vibratory roller and all lead and lifts, dressing, watering complete in all respect as approved and directed by the Engineer incharge	CH	1,371,033.00		
5	Supplying and filling sand under floor or plugging in walls	100 CH	35,845.00		
6	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate) i) Ratio 1: 2: 4	Cft	1,274.00		
7	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate) ii) Ratio 1: 4: 8	Cft	22,513.00		
8	Placing, compacting, finishing and curing of concrete using Ordinary Portland Cement / Sulphate resisting cement / Slag cement as may be required including screening, washing of aggregate and mixing of constituents using batching plant, Transportation by transit mixer, pouring with pump in the required proportions to achieve a nominal cylindrical strength in the field as per ACQ14, with the specified consistency, at the cost of shoring, compaction with Vibrator, excluding the cost of Admixture, as approved and directed by the Engineer incharge				
	(a) Superstructure (Slabs, Beams, Columns and others requiring formwork) i) 4000 Psi	Cft	575,094.00		
	(b) Retaining/ Shear walls laid in situ or precast laid in position, or prestressed members cast in Formwork on both sides i) 4000 Psi ii) More Than 8" Thick	Cft	18,081.00		
	(c) Substructure (Foundations, Raft, Slip and Footing Beams) i) 4000 Psi	Cft	3,743.00		
		Cft	1,9,329.00		





RIVER RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF BRIDGE AT JAHANGIR TOMB (BILL NO.2)
BILL OF QUANTITIES

Sr No	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
9	Placing, compacting, finishing and curing of concrete using Ordinary Portland Cement / Sulphate resisting cement / Slag cement as may be required, including screening, washing of aggregates and mixing of constituents using batching plant, Transportation by transit mixer, pouring with pump in the required proportions to achieve a nominal cylindrical strength in the field as per ACI214, with the specified consistency, in the post of _____ compaction with vibrator, excluding the cost of Admixture, as approved and directed by the Engineer In-charge.				
	_____	Cft	411.58100		
10	Providing and laying Kerb Block / R.C.C Barrier of Concrete having compressive strength of 4000 PSI of required size with Slip form Paver power kerber machine, batching plant, including the cost of admixts / Super plasticizer, steel reinforcement and its labour for bending and laying in position as specified etc complete in all respect.	Cft	39.18430		
	b) R.C.C Barrier				
	i) Single Face				
	ii) Double Face	Cft	29.18230		
11	Fabrication of mild steel reinforcement for cement concrete including cutting, bending, laying in position, making joints and inter-locks including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from _____)	Tons	10.81000		
12	Providing and casting in situ bored precast reinforced _____ piles with specified type of precast concrete using _____ coarse sand, including all labour and materials, boring rig, machine, crane, excavator, welding plant, batching plant, transit mixer, 14 nos etc (except the cost of steel reinforcement, _____ labour for bending and laying in position and boat platform _____ which will be paid separately, including, screening & curing of single and curing as approved by Engineer in-charge.-				
	i) Ordinary Soil.				
	b) 4000 Psi Compressive Strength				
	_____	RM	10.81000		
13	Fabrication of mild steel reinforcement deformed bar cage of _____ specified yield strength for R.C.C bored piles including cutting, bending, lowering of cage with crane in position, welding and _____ including the cost of binding wire, Crane machine _____ includes removal of rust from the bars as approved and directed by the Engineer In-charge	Tons	4.61119		
	i) Deformed Bars (Grade-60)				
14	Lifting, transporting and placing precast prestressed concrete Beam, Girder and other members (excluding bellens) etc., in position on the bridge in correct alignment and level, etc., complete in all respect as directed by the Engineer In-charge.	Per Ton	30.56500		
15	Fabrication of high tensile steel prestressing cables for precast/pre-tensioned concrete, including assembling by crowing the H.T. wire through metal spacer plate, inserting a half cone and taper or eye, sheathing in longitudinally welded metal corrugated sheath, positioning, anchorage with male and female end of anchorage cone, forming ducts for prestressing cable, stressing cables with jacks at both ends as per stressing schedule, maintaining stressing record and supply the same in the approved _____ conforms to the Engineer-in-charge, making loop at blind end, including all materials required for it, grouting the cable ducts with cement, cutting projected ends and making good _____, etc., complete in all aspects.	Per Ton	855.22		

RIVER RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF BRIDGE AT JAHANGIR TOMB (BILL NO.2)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
15	Providing and laying Elastomeric Neoprene Bearing Pads of specified grade. Specific gravity, hardness, elongation, min tensile strength of 2250 psi, and compressive strength of 2000 psi conforming to ASTM D 2240 standard test method for rubber as approved and directed by the Engineer Incharge ii) Grade 60 iii) Laminated iv) Without Airtrage	Cu.cm	8,995,600.00		
17	Providing and laying metallic expansion Joints of 34" thick Aluminium Alloy strip of specified width duly bolted with check nuts (5/8" dia) with the MS lugs for specified movements as mentioned by the designer (i) the cost of polystyrene joint fill but excluding the cost of lugs complete in all respect as approved and directed by the Engineer Incharge iii) Finger Comb Plate Type iv) 25 mm to 40 mm	Rft	2,241.00		
18	Providing and laying full course of stone product of specified quality and grade, including packing, bedding and compaction of sub-base material to required camber, grade to achieve 100% maximum modified AASHTO dry density, including carriage of all material to site and disposal of surplus.	Cu	89,524.00		
19	Providing and laying base course of crushed stone aggregate of specified quality and grade, and supply and spreading of screening, including placing, bedding, spreading and compaction of base course material to required depth, grade to achieve 100% maximum modified AASHTO dry density, including carriage of all materials in site of work except disposal of surplus.	Cu	107,852.00		
20	Providing and laying bituminous priming coat, using 10 lbs. of bitumen per 100 Sft. or 0.5 Kg kerosene and 0.5 kg binder (Asphaltic Base Course)	100 Sft	107,826.00		
21	Providing and laying plain premixed bituminous carpet, including compaction and finishing to required camber, grade and density iii) 4% Bitumen	Cu	36,598.00		
22	Providing and laying bituminous tack coat, using 10 lbs. of bitumen per 100 Sft. or 0.5 Kg of bitumen per sq.m. (Asphaltic wearing Course)	100 Sft	240,098.00		
23	Providing and laying plain premixed bituminous carpet, including compaction and finishing to required camber, grade and density iii) 4.5% Bitumen	Cu	31,878.00		
24	Providing and laying bituminous surface coating in plastered or cement concrete surface - ii) 20 lbs. per 100 Sft. (9.07 Kg per 5sq.m)	100 Sft	168,329.00		
25	Painting Traffic Lane Marking of specified width with 1" (25mm) thick, Thermoplastic (TP) Paint including Glass Beads, complete in all respect, as approved and directed by Engineer incharge ii) 18" wide	Rft	18,361.00		
26	Providing & laying Cat Eyes of size 4"x4"x4" duly coated with specified material having plastic strip containing reflective glass beads of color white/yellow having specific reflection, quality & shape to the cost of self bulk in 12mm dia x 120mm long steel zinc plated nail, being to used with epoxy hammering with repairs not complete i) Acrylic material ii) Dual-Directional iii) 18x2x30 Glass beads x side	Each	798.00		



RIVER RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF BRIDGE AT JAHANGIR TOMB (BILL NO.2)

BILL OF QUANTITIES

Sr. No	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
27	Providing and laying Tuff Pavers having 7000 PSI, crushing strength of approved manufacturer over 2" to 3" sand cushioning and grouting with sand in joints to finishing to require slope, complete in all respect. 50% Gray + 50% Coloured	Sq	47,032.00		
28	Extra for knowledge and loading arrangements for test pile to ensure structural and Geotechnical soundness of pile upto a maximum load load applying in stages to the hiring of machinery required for complete job and furnishing a report in this regard by a qualified / authorized Geotechnical Engineering by studying the data of at least seven days as approved and directed by the Engineer incharge Pile Load Test (upto 2.5 Times the design load)	Per M Ton	2,400.00		
29	Providing, laying, cutting, joining, bedding and installing PVC / uPVC pipe line with working pressure pipe. In trenches, including specials (IS-3051-BS-3525), complete in all respects - 1) Class-D (12 cm) 2) 150 mm 3) 200 mm	Rt	5,181.00		
30					
31	Small iron work, such as gusset plates, knee bands straps, lugs, rings, etc. including cutting, drilling, riveting, handling, painting and fixing including erection in position	Kgs	47,860.00		
32	Fabrication of heavy steel work, with angle, tee, flat bar, round iron and sheet iron for making trusses, girders, tanks, etc. including cutting, drilling, riveting, handling, assembling and erection in position.	Kgs	80,000.00		
32	Supply of water	1000 Cu	28,252,000.00		
	Requirement, and	Square meter of			
	Construction (EPC) services for a Mechanically Stabilized Earth (MSE) Wall over waterfront including				
	5m		1,594.10		
	7m	ISM of Wall area	3,173.50		
	9m		1,269.40		
33	Division Works	P S	1.00		60,350,000.00
Total Cost					





RIVER RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF BRIDGE AT JAHANGIR TOMB (BILL NO.2)



BILL OF QUANTITIES

Sr. No	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
2.2	Bridge (Architectural Works)				
	RCC GATES, COLUMNS AND FINISHES				
1	Placing, compacting, finishing and curing of concrete using Ordinary Portland Cement / Sulphate resisting cement / Slag cement as may be required, including screening, washing of aggregates and mixing of constituents using batching plant. Transportation by transit mixer, pouring with pump in the proportions to achieve a nominal cylindrical strength in the field as per ACI211, with the specified consistency in the of shuttering, compaction with vibrator including the of Admixure, as approved and directed by the Engineer.				
	a) Superstructure (Slabs, Decks, Columns and equating formwork)	Cu	172.473 00		
	(iv) 4000 Psi				
2	Fabrication of mild steel reinforcement, including cutting, bending, laying in position, making joints, cleaning, including cost of bracing wire and labour and a binding of steel reinforcement (also includes removal of rust)				
	Deformed bars	Tons			
3	Priming and applying wear and tear paint of approved quality on external surface of building including preparation of surface, application of primer complete in all respect:				
	a) new surface				
	i) 1st coat				
	ii) 2nd coat				
	1st	100 Sqft	55.479 00		
	2nd	100 Sqft	5.735 00		
	3rd	100 Sqft	5.735 00		
	4th	100 Sqft	5.735 00		
	5th	100 Sqft	5.735 00		
	6th	100 Sqft	5.735 00		
	7th	100 Sqft	5.735 00		
	8th	100 Sqft	5.735 00		
	9th	100 Sqft	5.735 00		
	10th	100 Sqft	5.735 00		
	11th	100 Sqft	5.735 00		
4	Finishes and Structure	P.S	1 00		50 000,000 00
Total Cost					



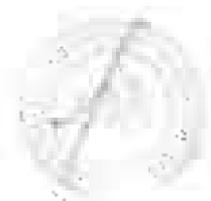


RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF BRIDGE AT JAHANGIR TOMB (BALL NO.2)



BILL OF QUANTITIES

Sr. No.	Item Description	Units	Quantity	Rate (Rs.)	Amount (Rs.)
2.3	Parking				
1	Earthwork excavation increased lead upto a single throw of Kassi phanth or shovel, including lead	1000 Cu	15,000.00		
2	Removal of unusable material from site.	Cu	15,000.00		
3	Preparation of earthwork with power road roller, including spreading, mixing, maintaining earth to optimum moisture content in layers, etc. complete (95% to 100% maximum modified AASHTO dry density)	1000 Cu	7,500.00		
4	Making embankment using Borrow Earth including cost of earth, its all Lead and lift and its compaction with power road roller, including clearing grubbing, ploughing, mixing, maintaining earth to optimum moisture content in layers, etc. complete with (95% to 100% maximum modified AASHTO dry density)	Cu	10,500.00		
5	Leveling and filling sand under floor, or plugging in	100 Cu	3,750.00		
6	Providing and laying sub-base course of stone product of approved quality and grade, including placing, mixing, spreading and compaction of sub-base material to required depth, conforming grade to achieve 100% maximum modified AASHTO dry density, including carriage of all material to site of work except gravel and	Cu	10,020.00		
7	Cast-in concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):	Cu	15,000.00		
8	Painting Traffic Lane Marking of specified width (1.5mm thick) with Thermoplastic (TP) Paint including Glass Beads complete in all respects, as approved and directed by Engineer-in-charge	Sq	4,500.00		
9	Painting Arrows & Zebra crossings (1.5mm thick) with Thermoplastic (TP) Paint including Glass Beads, complete in all respects	Sq	750.00		
10	Providing & fixing Cat Eyes (4" x 4" x 3/4" duly coated with specified material having plastic matrix containing min. ultra-reflection glass beads of 1.5mm diameter having specific reflections, quality & shape as the cost of self fix in 12 mm dia. 120 mm long) with separate nail, fixing to road with epoxy	No.s	500.00		
11	Providing & Fixing Road Raised Profile (X Specified Size With Diamond Grid) Reflectors On Both Sides Etc. Complete Uni-Directional (X4 X2)	Each	75.00		
12	Providing and fixing precast Edge Kerb Stone (100mm x 150mm thick), of 3500 PSI Compressive strength, embedded in PCC 1:2:4 over lean concrete 1:4:8 etc. Complete in all respect: a) With Painting b) (1000x150x450mm high)	Sq	3,000.00		
13	Providing, fabrication and fixing pole mounted Direction Board (road delineator) of any shape and size, with specified Steel and thickness supported with U-Channel, (excluding the cost of vertical post and painting) including 3 mm thick Aluminum sheet etc. complete in all respect. (14 SWG)				





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JANANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF BRIDGE AT JANANGIR TOMB (BILL NO.2)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
	a) 3-4" size	Sft	116.00		
	b) RECTANGULAR SHAPE (sl 12-45 ft)	Sft	144.00		
14	Providing fabrication and fixing Vertical Post comprising of medium quality GI Pipe of specified diameter including the cost of clamping arrangements, top cover, hold fasts, PCC 1:2:4 footing of specified depth and excavation etc. complete in all respect, as approved and directed by the engineer incharge.				
	(a) 2 inch diameter (footing 1.5x1.6x1.7)	Rft	308.00		
15	Lettering and painting of signage / direction boards / road delineators of any colour by machine i/c cost of Digital Lettering, Lamination & pasting etc. complete in all respect.	Sft	260.00		
	b) Diamond Grade Tape				
16	Providing and laying Tuff batters, having 7000 PSI, crushing strength of approved manufacturer, over 2" to 3" sand cushion its grouting with sand in joints & finishing to require slope, complete in all respect. 50% Gray / 50% Coloured	Sft	1,000.00		
	50-mm thick	Sft	1,000.00		
Total Cost					





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF BRIDGE AT JAHANGIR TOMB (BILL NO.2)
BILL OF QUANTITIES



Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bdl No. 2.4	Drainage Works				
1	Earthwork excavation in open cutting for storm water channels, drains, surface drains in open areas, roads, streets, lanes including under of walls and shoring to protect existing works, shoring and timbering the trenches, dressed to designed level and dimensions, trimming, removal of surface water from trenches, back filling and surplus excavated material disposed of and dressed within of II. (15 m) lead: 1) Upto 5 (1.5 meter) depth 1) Upto 5' (1.5 meter) depth B) By Mechanical means Ordinary	1000 Cu	16,800.00		
2	Supplying and filling sand under floor or plugging in walls	100 Cu	1,680.00		
3	Cement concrete slab including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate): (i) Ratio 1 : 4 : 8	100 Cu	1,200.00		
4	Face brick work (over true backing upto 10ft. (3 m) height, i) cement, sand mortar, Ratio 1:4	100 Cu	4,620.00		
5	Cement plaster 1:4 upto 20' (6.00 m) height - (1) 1/2" (12 mm) thick	100 Sq	5,660.00		
	Placing, compacting, finishing and curing of concrete using Ordinary Portland Cement / Sulphate resisting cement / Blag cement as may be required including screening, washing of aggregates and mixing of constituents using batching plant. Transportation by transit mixer, pumping with pump in the required proportions to achieve a nominal cylindrical strength in the field as per ACI 214, with the specified consistency, at the cost of shuttering, compaction with vibrator excluding the cost of Admixture, as approved and directed by the Engineer incharge.				
E	Reinforced cement concrete in roof slab, beams, columns, lintels, girders and other structural members cast in situ or precast laid in position, or prestressed members cast in situ, complete in all respects - 4000 PSI	Per Cu	1,700.00		
	(a) Retaining/ Shear walls cast in situ or precast laid in position, or prestressed members cast in situ, complete in all respects - 4000 PSI	Per Cu	338.00		
	(c) Substructure (Foundations, Ret. Strip and Footing Beams) (incl 4000 PSI)	Per Cu	265.00		
7	Fabrication of mild steel reinforcement for cement concrete including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of slab reinforcement (also includes removal of rust from bars) - (b) Deformed bars (c) (Grade-60)	Kg	7,758.00		
8	Bitumen coating to plastered or cement concrete surface, 20 lbs. per 100 Sq. Ft. (A or B Kg per Sq.m)	100 Sq	1,431.00		
9	Providing and embedding 1 1/2" (250mm) wide PVC water stopper in expansion joints of RCC structures (Retaining walls, water tanks, Slabs) complete in all respects, 10mm Thick	Sft	414.00		
10	Small iron work, such as general plates, knees, bands, straps, rings, etc. including cutting, drilling, riveting, turning, grinding and fixing including erection in position.	100kg	100.00		
Total Cost					





RIVER RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF BRIDGE AT JAHANGIR TOMB (BILL NO.2)
ELECTRICAL WORKS (BILL NO.2-5)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
804 (d)	Single core 15mm ² PVC insulated copper conductor 450/750 volts cable in precast PVC pipe/M.S. conduit/G.I pipe/wooden strip support/wooden casing on tapping/G.I. wiretrenches (rate for cables only)	Rm	1.745 00		
804(e)	3 Nos. 1 core 25 mm ² Cu/PVC 450/750 Voltage grade cable (cabled conductor) (impregnated copper shall be used. Verified documentary evidence for source of copper & PVC shall be furnished prior to manufacturing) from junction box to the lifting through the hollow of pole.				
	For 12m Pole	No	92.00		
805	Road lighting control panel with angle iron frame cladded 14 SWG. sheet steel enclosure having high quality powder coated paint color RAL 7012. The LCP shall be complete with incoming and outgoing MCCBs, Cu bus bars, magnetic contactors, photo-electric switches, meters, indication lights, construction with IP 54 protection class, door, locking arrangement etc. and all other accessories as required for quality work. MATERIAL 1 No. incoming 63 Amp.(adj.) TP MCCBs, 25 kA 4 No. outgoing 25 Amp. (adj.) TP MCCBs, 25 kA 2 No. outgoing 25 Amp. (adj.) TP MCCBs, 25 kA (Spare) 4 No. 32 Amp. magnetic contactor 2 No. 32 Amp. magnetic contactor (Spare) 3 No. photo-electric switches with timers and relays a) 1 No. ammeters 0-100 Amp. with selector switch (1% position) CT of 100/5 Amp b) 3 No. indication lights c) 1 No. voltmeter with fuse and 7 position selector switch. d) 3 Ph. N & Earth copper bus bars (internal wiring & busbar terminals etc. Brass cable glands/terminals) e) 06 Nos. Auto Manual-OFF (3 position switches for operation auto with photocell and manual (manual mode-photocell override) f) 06 Nos ON & 06 Nos OFF push button switches with indicator Panel light with dimmer switch Earthing 1 No. type Earth plate comprising of 50*100 (16 mm dia) 10 ft long galvanized M.S. rod driven in ground duly fixed with 2 nos. earth test link copper plate (500x50x10mm) to the cast iron nuts spacers, bolts washers lugs etc. complete in all including earth pit and RCC cover. Pole Mounted Transformer 1 No. oil cooled type, Step down Power Transformer pole mounted of 100 kVA rating, 11/0.415 KV. to the cost of lifting hooks, thermometers T & RT bushing 5-steps, tap changer, imported double contact relay, 2 earthing terminals, roller wheels. 1 No. MS box for cables MS box on transformer in order in bank L.T side all necessary materials required for 100 kVA transformer & L.T side rated voltage 11000/415/240 V impedance 4% as specified by WAFDA/IEC system earth Delta / Star, neutral earthed, no Wafda testing charges complete as per schedule of P.E.L. Siemens Transpower Finland or as approved and specified by the Engineer incharge with three phase energy meter.	Job	1.00		
806	Earthing	Lach	2.00		
807	Pole Mounted Transformer	Job	1.00		
808	Pole Mounted Transformer				





RIVER RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF BRIDGE AT JAHANGIR TOMB (BILL NO.2)
ELECTRICAL WORKS (BILL NO 2.5)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
As per WAPDA Specs.	Supply of 100 kVA, 11/0.415 KV pad mounted transformer with M.F. & LT Compartment with foundation and all accessories, installation and Connector Charges with energy meter as per WAPDA standards and practice.	Job	1.00		
509	<u>MV Cable and Termination Kit</u>				
a)	MV cable 3-core 120mm ² XLPE/PVC/SWA/PVC cable with aluminum conductor voltage grade 9/715 KV	Run	1 000.00		
b)	Providing and fixing/installation indoor 3-core 120mm ² , 11KV, XLPE heat shrink termination Kit complete in all respect as required.	Job	1.00		
c)	Providing and fixing/installation outdoor 3-core 120mm ² , 11KV, XLPE, heat shrink termination Kit complete in all respect as required.	Job	1.00		
B'0	<u>Bore Type Earthing for Pad Mounted Transformer</u>				
a)	Bore type earthing up to permanent water level/total soil by arrangement of earth pit/point comprising of concrete backwork housing with lifting cover 50mm perforated GI pipe, appropriate bare copper stranded conductor as per details in drawing. The earthing and bonding shall be complete with fixing clamps etc. & all metal works shall be bonded to the proposed earthing network.				
	MATERIAL				
	Drilling of earth bore 3" dia 100 ft deep in up to permanent water table				
	Supply and installation of perforated GI pipe 2" dia (Medium Quality) to be installed in pre-made bore including all accessories like nuts, bolts, washers etc. Pipe shall be connected to lined copper spike as per detail shown in drawing, complete in all respects.				
	Supply and installation of lined copper spike to be manufactured as per detail shown in drawing. Spike shall be connected/screwed at bottom of GI pipe including all accessories like nuts and bolts complete in all respect.	Job	1.00		
	Supply and installation of 2 Nos. 70 mm ² bare stranded electrolytic copper conductor laid in pre-dia GI pipe and connected to lined copper spike as shown in drawing. 02 Nos. leads to be installed including all accessories like brass nuts, bolts, washers etc. complete in all respect.				
	Supply and installation of lined earth test link in earthing pit consisting of copper plate (12" x 2" x 1/2") with fixing arrangement on the wall of man hole including brass nuts, bolts, washers lugs etc. complete in all respect.				
	Construction of earthing pit (manhole) of internal size 18" x 8" x 24" deep with 9" thick brick wall with cement mortar, internal plaster 1/4", RCC 4" thick cover with lifting hooks including all accessories complete in all respect.				
	Testing and commissioning of the earthing system with all testing accessories complete in all respect.				
	Total Cost				







RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF ROAD INFRONT OF JAHANGIR TOMB (BILL NO.3)
SUB SUMMARY



Bill No.	Item Description	Amount in (Rs.)
3.1	Earthwork and Allied Activities	
3.2	Sub-base & Base Course	
3.3	Surface Courses & Pavement	
3.4	Ancillary Works	
3.5	Drainage Works	
3.6	Electrical Works	
TOTAL CONSTRUCTION COST		





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF ROAD INFRONT OF JAHANGIR TOMB (BILL NO.3)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
BIII					
No. 3.1	Earthwork and Allied Activities				
1	Angle clearance and removing within 100 ft. (30 m).				
	a) Ordinary	1000 Sq	11,007.00		
	b) Heavy	1000 Sq	4,724.00		
2	Compaction of earthwork with power road roller, including ploughing, mixing, moistening earth to optimum moisture content in layers, etc. complete:-				
	i) 95% to 100% maximum modified AASHTO dry density.	1000 Cft	29,100.00		
	ii) 90% maximum modified AASHTO dry density.	1000 Cft	12,468.00		
3	Earthwork excavation (undressed lead upto a single throw) (in ordinary soil):-				
	i) In ordinary soil	1000 Cft	1,191.00		
4	Earthwork in ordinary soil for embankments, including ploughing, mixing and compaction by mechanical means at optimum moisture content and dressing to designed section including all lead and lift, complete in all respects:-				
	i) 95% to 100% maximum modified AASHTO dry density	Cft	2,537.00		
	ii) With 90% Compaction of AASHTO dry density.	Cft	1,095.00		
5	Earthwork with Scarrow in ordinary soil for embankments, including ploughing, mixing and compaction by mechanical means at optimum moisture content and dressing to designed section including all lead and lift, complete in all respects:-				
	With 95% to 100% Compaction of AASHTO dry density.	Cft	191,479.00		
	With 90% Compaction of AASHTO dry density	Cft	82,072.00		
6	Providing and laying good quality / local sand cushion from approved source (compacted in layers not exceeding 6" thickness) by mechanized means including the cost of front end loader, vibratory roller and all lead and lifts, dressing, watering complete in all respect as approved and directed by the Engineer Incharge	Cft	3,991.00		
Total Cost					





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF ROAD INFRONT OF JAHANGIR TOMB (BILL NO.3)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 3.2	Sub-base & Base Course				
1	Providing and laying sub-base course of stone product of approved quality and grade, including placing, mixing, spreading and compaction of sub-base material to required depth, camber, grade to achieve 100% maximum modified AASHTO dry density, including carriage of all material to site of work except gravel and aggregate.				
	a) Crushed stone aggregate.	Cft	59,647.00		
2	Providing and laying (WBM) base course of crushed stone aggregate of approved quality and grade, and supply and spreading of stone screening, including placing, mixing, spreading and compaction of base course material to required depth, camber and grade to achieve 100% maximum modified AASHTO dry density, including carriage of all materials to site of work except gravel and aggregate.	Cft	65,114.00		
Total Cost					

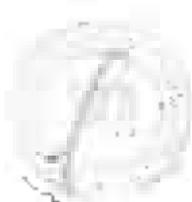




RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF ROAD INFRONT OF JAHANGIR TOMB (BILL NO.3)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 3.3	Surface Courses & Pavement				
1	Providing and laying bituminous priming coat, using 10 lbs. kerosene oil and 10 lbs. binder per 100 Sft. or 1.5 Kg kerosene oil and 0.5 Kg binder per square metre.	100 Sft	86,118.00		
2	(Asphaltic Base Course) Providing and laying plant premixed bituminous carpet including compaction and finishing to required camber, grade and density. (i) 4% Bitumen	Cft	27,105.00		
3	Providing and laying bituminous tack coat, using 10 lbs. bitumen per 100 Sft (0.45 Kg of bitumen per sq.m)	100 Sft	132,232.00		
4	(Asphaltic Wearing Course) Providing and laying plant premixed bituminous carpet, including compaction and finishing to required camber, grade and density. (i) 4.5% Bitumen	Cft	10,885.00		
Total Cost					





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF ROAD INFRONT OF JAHANGIR TOMB (BILL NO.3)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 3.4	Ancillary Works				
1	Providing and laying Tuft pavers, having 7000 PSI, crushing strength of approved manufacturer, over 2" to 3" sand cushion (ic 1) Finishing to require slope . complete In all respect (50% Grey / 50% Coloured) 1) 50-mm thick	Sq	15,747.73		
2	Painting Traffic Lane Marking of specified width (1.5mm thick), 1) with Thermoplastic (TP) Paint including Glass Beads, complete in all respect, as approved and directed by Engineer incharge. 1) 6" wide)	Rt	6,998.00		
3	Painting Arrows & Zebra crossings (1.5mm thick), with the Thermoplastic (TP) Paint including Glass Beads, complete in all respect	Sq	1,148.00		
4	Providing & fixing Cat Eyes of size 4" x 4" x 1.4" duly casted with specified material having plastic strip containing mini retro- reflective glass beads of color white/ red/ yellow having specified reflections, quality & shape the cost of soil built in 12mm dia x 120mm long steel zinc plated nail, fixing to road with epoxy/ hammering with separate nail complete. a) Acrylic material (2) Uni-Directional 1) 43 Glass beads wide	Nos	700.00		
5	Providing & fixing Road Studs of aluminium alloy (raised profile) of specified size with Diamond grade reflectors on both sides etc complete b) Dual- Directional (1) 6" x 4" x 1.75"	Nos	24.00		
6	Providing and fixing precast Edge Kerb Stone (100mm to 150mm thick), of 3500 PSI Compressive Strength, embeded in PCC 1:2:4 over lean concrete 1:4:8 etc. Complete in all respect b) With Painting 1) 100x150x450mm high)	Rt	2,756.00		
7	Providing & fixing precast Edge Kerb Stone (10" to 12" dia) and 14" high of Compressive Strength of 3500 PSI laid in cement sand mortar (1:3) over pre-laid brick masonry for drain cum footpath etc complete in all respect. 1) Without painting)	Rt	2,756.00		
9	Providing, fabrication and fixing pole mounted Direction Board / road delineator of any shape and size, with specified Sheet and thickness, supported with G.I Channel, (excluding the cost of vertical post and painting) etc complete in all respect (A) G.I Sheet 14 SWG i) CIRCULAR/TRIANGULAR a) 3-4 ft size	Sq	129.00		





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF ROAD IN FRONT OF JAHANGIR TOMB (BILL NO.3)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
9	Providing fabrication and fixing pole mounted Direction Board / road delineator of any shape and size, with specified Sheet and thickness, supported with G.I Channel. (excluding the cost of vertical post and painting) etc complete in all respect.				
	ii) RECTANGULAR SHAPE				
	a) 12-48 sq ft	Sq ft	86.00		
	b) 54-120 sq ft	Sq ft	269.00		
10	If 3mm thick Aluminium sheet is used instead of G.I Sheet, following composite rates shall be added.				
	a) 3-4 ft size	Sq ft	129.00		
	b) 12-48 sq ft	Sq ft	86.00		
	c) 54-120 sq ft	Sq ft	269.00		
11	Providing fabrication and fixing Vertical Post comprising of medium quality G.I Pipe of specified diameter, including the cost of clamping arrangements, top cover, hold fasts, PCC 1:2:4 footing of specified depth and excavation etc complete in all respect, as approved and directed by the engineer incharge				
	a) 3 inch diameter (spacing 1.5x1.5x5)	Rt	66.00		
	b) 4 inch diameter (spacing 1.5x1.5x6)	Rt	88.00		
	c) 5 inch diameter (spacing 1.5x1.5x6)	Rt	59.00		
	d) 8 inch diameter (spacing 2.0x2.0x6)	Rt	59.00		
12	Lettering and painting of signage/ direction boards/ road delineators of any colour by machine i.e. cost of Digital Lettering, Lamination & pasting etc. Complete in all respect.	Sq ft	484.00		
	a) Diamond Grade Traffic				
Total Cost					





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF ROAD INFRONT OF JAHANGIR TOMB (BILL NO.3)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Rate (Rs.)	Amount (Rs.)
Bill No. 3.5	Drainage Works			
1	Earthwork excavation in open cutting for storm water channels, rains, sullage drains in open areas, roads, streets, lanes, including under pinning of walls and shoring to protect existing works, shuttering and finishing the trenches, dressed to designed level and dimensions, trimming, removal of surface water from trenches, back filling and surplus excavated material disposed of and dressed within 50 ft (15 m) lead.- 1) Up to 5' (1.5 meter) depth 1) Up to 5' (1.5 meter) depth B) By Mechanical means Ordinary	1000 Cft	31,678.00	
2	Stopping and filling sand under floor or plugging in wells.	100 Cft	636.00	
3	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate) Ratio 1: 4: 8	Cft	1,483.00	
4	Placing, compacting, finishing and curing of concrete using Ordinary Portland Cement / Sulphate resisting cement / Sleg cement as may be required, including screening, washing of aggregates and mixing of constituents using batching plant, transportation by transit mixer, pouring with pump in the required proportions to achieve a nominal cylindrical strength in the field as per ACI214, with the specified consistency, at the cost of slushing, compaction with Vibrator, excluding the cost of admixture, as approved and directed by the Engineer incharge			
4	(a) Reinforced cement concrete in roof slab, beams, columns, truss, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects.- (iv) 4000 PSI	Cft	2,154.00	
	(b) Retaining / Shear walls laid in situ or precast laid in position, or prestressed members cast (Formwork on both sides) (iv) 4000 PSI (v) Up to 5' thick	Cft	6,675.00	
	(c) Substructure (Foundations, Raft, Strip and Footing Beams) (iv) 4000 PSI	Cft	2,154.00	
5	Fabrication of mild steel reinforcement for cement concrete including cutting, bending, tying in position, making joints and fastenings including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars):- (b) Deformed bars (v) 4000 PSI	Tons	32.38	
6	Bitumen coating to plastered or cement concrete surface:- (i) 20 lbs. (v) 100 Sq.ft. (9.07) per Sq.m	100 Sft	32,464.00	
7	Providing and embedding 10" (250mm) wide PVC water stopper in expansion joints of RCC structures (Retaining walls, water tanks, Slabs) complete in all respect 10mm Thick	Rft	3,251.00	





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF ROAD INFRONT OF JAHANGIR TOMB (BILL NO.3)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Rate (Rs.)	Amount (Rs.)
7	Filling expansion joints with bitumen, sand & saw dust in ratio 1:2:2.	RM	227.03	
Total Cost				





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAWI RIVER
IMPROVEMENT OF ROAD INFRONT OF JAHANGIR TOMB (BILL NO.3)

ELECTRICAL WORKS (BILL NO. 3.6)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
	Design, supply, transportation, storage, installation, testing and commissioning of the following items of work, including all material, labour, tools and accessories etc. required for proper completion of each item as per specification, drawings and/or as directed by the Engineer.				
801(a)	12m high single arm octagonal shape electric street light pole, made of hot dipped 4.5 mm thick (7 SWG) galvanized steel, tapered from 225 mm at bottom to 100 mm at top, with 1500 mm x 80 mm x 4 mm thick die arm for luminaire installation, duty G.I. welded with 470x470x20 mm base plate with the help of 4 no triangular stiffeners 100x350x20 mm of GI sheet with built in junction box with shutter & one (01) no. 2A SP MCB 10kA breaker, its the cost of nuts & J-rag bolts, duty fixed in precast concrete foundation, foundation will be paid additionally as approved and directed by the Engineer Incharge.	Each	20.00		
801(d)	Road Lighting Pole Foundation	Each	20.00		
	LED Road & Flood Light Fixtures				
802(a)	Road Lighting LED Cobra-head Luminaires of 120W and 120 lmmW conforming to IP 66 & IK 09 or above Philips/Osram/Thorn or NEECA approved equivalent manufacturer with corrosion resistant die casted Aluminium housing, silicon gasket in special groove, UV stable & scratch resistant synthetic materials, thermally hardened glass complete with LED Chip (Philips Lumileds/Osram/Nichia/Ceram make or equivalent approved manufacturer), programmable LED driver (Harvard/TCB/Luminate/Philips/VOSS/LOH Schwabe/Lightech make or approved equivalent manufacturer) minimum 10kV surge protection rating to the cost of all accessories/ components required for proper operation, fully flexible for future upgradation and easy replacements for maintenance purposes, bucket elevator charges as approved and directed by the Engineer Incharge.	No.	20.00		
	Cables & Pipes				
803(a)	PVC pipe/conduit Class-D 100 mm dia with accessories suitable for laying multi-core cables in trenches/directly buried on road crossings including excavation.	Rm	300.00		
803(b)	PVC pipe/conduit Class-B 100 mm dia with accessories suitable for laying multi-core cables in walls/bamers/structure	Rm	120.00		
803(c)	PVC pipe/conduit Class-B 100 mm dia with accessories suitable for laying multi-core cables from pole to pole in trenches/directly buried including excavation.	Rm	1,490.00		
	Low Voltage Power Cables				
804 (a)	PVC insulated, PVC sheathed 4 core 25 mm ² , EDD1000 volt non armoured copper conductor cable for service connection, in precast pipe/G.I. wire/trenches, etc (rate for cable only)	Rm	300.00		
804 (b)	Single wire 25mm ² PVC insulated copper conductor 450/750 volt cable, in precast PVC pipe/M.S. conduit/G.I. pipe/wooden split/batten/wooden casing on rapping/G.I. wire/trenches (rate for cable only)	Rm	60.00		





RAM URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAM RIVER
IMPROVEMENT OF ROAD INFRONT OF JAHANGIR TOMB (BILL NO.3)
ELECTRICAL WORKS (BILL NO. 3.6)

BILL OF QUANTITIES

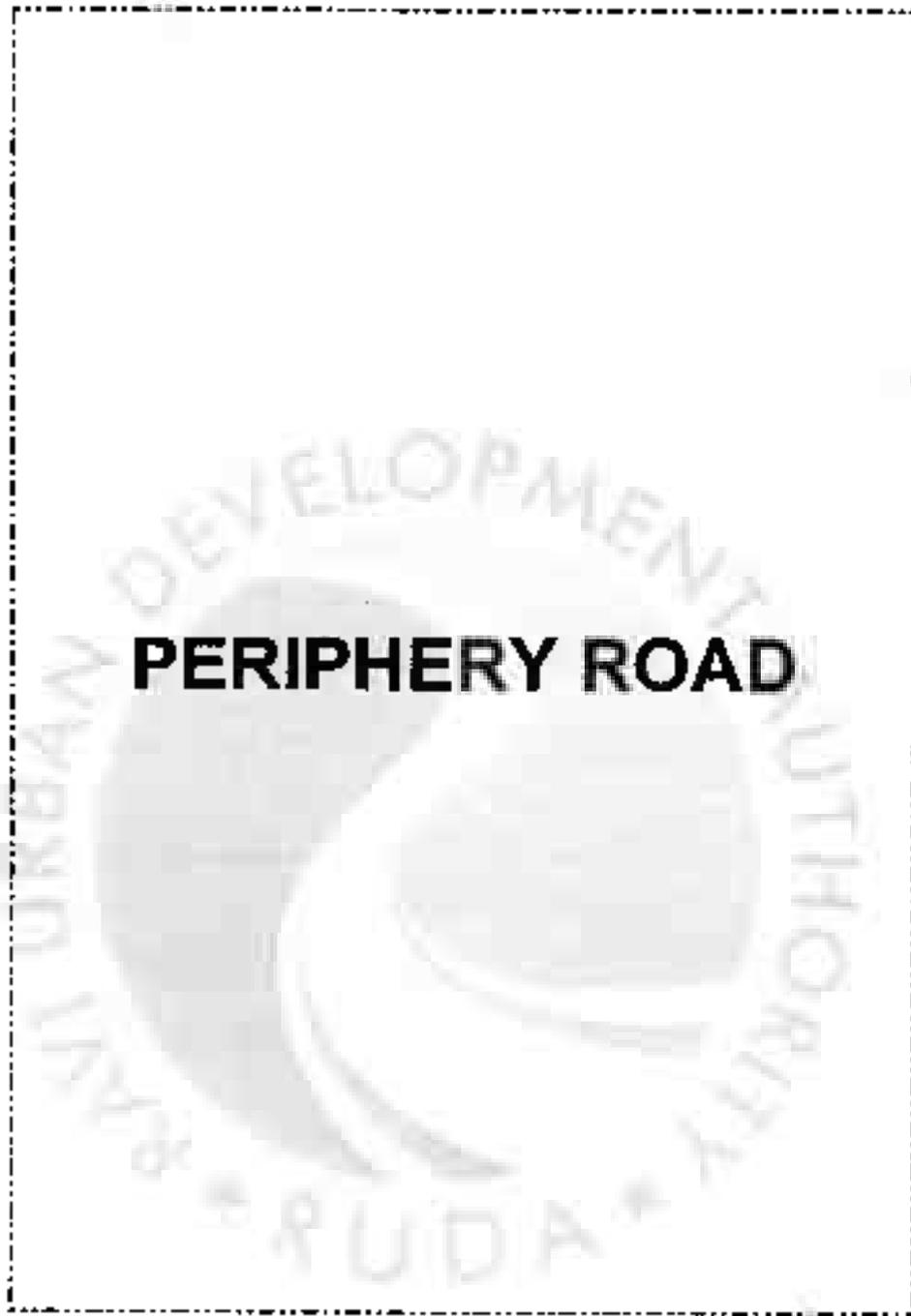
Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
904(c)	PVC insulated, PVC sheathed 4 core 16 mm ² 500/1000 volt non armoured copper conductor cable for service connection, in pre-laid pipe/G.I. wire/trenches, etc. (rate for cable only)	Rm	1,910.00		
904(d)	Single core 14mm ² PVC insulated copper conductor 450/750 volts cable, in pre-laid PVC pipe/M.S. conduit/G.I. pipe/wooden skip after/wooden casing or capping wire/trenches (rate for cables only)	Rm	2,210.00		
904(e)	Nos. 1 core 2.5 mm ² Cu/PVC 450/750 Voltage grade cable (stranded conductor) (Imported copper shall be used. Verified documentary evidence for source of copper & PVC shall be furnished prior to manufacturing) from junction box to the fitting through the hollow of pole				
i	For 12n Pole	No	20.00		
905	<p>Fixed lighting control panel with angle iron frame clad 14 SWG. sheet steel enclosure having high quality powder coated paint, color RAL 7032. The LCP shall be complete with incoming and outgoing MCCBs, bus bars, magnetic contactors, photo-electric switches, meters, indicator lights, construction with IP 54 protection class, door, locking arrangement etc. and all other accessories as required for quality work.</p> <p>MATERIAL</p> <ul style="list-style-type: none"> 1 No. incoming 63 Amp (adj.) TP MCCBs, 25 kA 1 No. outgoing 25 Amp. (adj.) TP MCCBs, 25 kA 1 No. outgoing 25 Amp. (adj.) TP MCCBs, 25 kA (Spare) 1 No. 32 Amp. magnetic contactor 1 No. 32 Amp. magnetic contactor (Spare) 1 No. photo-electric switches with timers and relays 1 No. ammeters 0-100 Amp. with selector switch (04 position) and CT 100/5 Amp 1 No. indication lights 1 No. voltmeter with fuse and 7 position selector switch. 1 3 Ph, N & Earth copper bus bars (internal wiring & line-up terminal) 1 Brass cable glands/accessories 1 06 Nos. Auto-Manual-OFF (3 position switches for operation in auto (with photocell) and normal (manual mode-photocell override) 1 08 Nos. ON & 1 06 Nos. OFF push button switch's with indication lights 1 Panel Light with time switch 	Jcb	1.00		
	Earthing				
806	<p>Rod type Earth point comprising of 5/8" dia. (16 mm dia) 10 ft long copper coated M.S. rod driven in ground duly fixed with clamp</p> <p>Tinned earth test link copper plate (300x50x10mm), 40 the coat of brass nuts, spacers, balls washers, etc. complete in all respect including earth pit and RCC cover.</p>	Each	1.00		
	Pole Mounted Transformer				



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF ROAD INFRONT OF JAHANGIR TOMB (BILL NO.3)
ELECTRICAL WORKS (BILL NO. 3.8)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
607 As per WAPDA Specs.	Oil cooled type, Step-down Power Transformer pole mounted of 25 kVA rating, 11KV/415 KV, fit the cost of lifting hooks, thermometers, LT & HT bushing 5-steps, tap changer, improved double float buchholz relay 2 earthing terminals, roller wheels, connecting terminals for cables M.S box on transformer in order to cover complete LT side, all necessary materials required for connections on H.T & L.T side, rated voltage 11000/415/240 V impedance 4% or as specified by WAPDA/IEC system earth: Delta / Star, neutral solidly earthed. (As per Wapda testing charges, complete in all respects made of PEL, Siemens, Transpower Elmetec or as approved and directed by the Engineer Incharge with three phase energy meter	Job	1.00		
608	MV Cable and Termination Kit				
a)	MV cable 3-core 120mm ² XLPE/PVC/SWA/PVC cable with aluminium conductor voltage grade 8.7/15 KV	Rm	673.00		
b)	Providing and fixing/Installation indoor 3-core 120mm ² 11KV, XLPE, heat shrink termination Kit complete in all respect as required.	Job	1.00		
c)	Providing and fixing/Installation outdoor 3-core 120mm ² 11KV, XLPE, heat shrink termination Kit complete in all respect as required.	Job	1.00		
Total					



PERIPHERY ROAD





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF PERIPHERY ROAD ALONG TOMB TO MAIN PARKING (BILL NO.4)



SUB SUMMARY

Sr. No.	Item Description	Amount in (Rs.)
4.1	Earthwork and Allied Activities	
4.2	Sub-base & Base Course	
4.3	Surface Courses & Pavement	
4.4	Ancillary Works	
4.5	Drainage Works	
4.6	Electrical Works	
TOTAL CONSTRUCTION COST		





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF PERIPHERY ROAD ALONG TOMB TO MAIN PARKING (BILL NO.4)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
B/B	Earthwork and Allied Activities				
4.1					
1	Single clearance and removing within 100 ft. (30 m).				
	i) Ordinary	1000 SF	13,213.00		
	ii) Heavy	1000 SF	5,669.00		
2	Compaction of earthwork with power road roller, including ploughing, mixing, moistening earth to optimum moisture content in layers, etc. complete:				
	i) 95% to 100% maximum modified AASHTO dry density.	1000 CR	87,299.00		
	ii) 90% maximum modified AASHTO dry density.	1000 CR	37,434.00		
3	Earthwork excavation undressed lead upto a single throw in ordinary soil.	1000 CR	1,936.00		
4	Earthwork in ordinary soil for embankments, including ploughing, mixing and compaction by mechanical means at optimum moisture content and dressing to designed section including all lead and lifts, complete in all respects:-				
	i) 95% to 100% maximum modified AASHTO dry density	CR	7,522.00		
	ii) With 90% Compaction of AASHTO dry density	CR	3,214.00		
5	Earthwork with Borrow in ordinary soil for embankments, including ploughing, mixing and compaction by mechanical means at optimum moisture content and dressing to designed section including all lead and lifts, complete in all respects:-				
	With 95% to 100% Compaction of AASHTO dry density	CR	574,936.00		
	With 90% Compaction of AASHTO dry density.	CR	248,216.00		
6	Providing and laying good quality / local sand cushion from approved source (compacted in layers not exceeding 6" thickness) by mechanized means including the cost of front end loader, vibratory roller and all lead and lifts, dressing, watering complete in all respect as approved and directed by the Engineer incharge.	CR	11,936.00		
Total Cost					





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF PERIPHERY ROAD ALONG TOMBS TO MAIN PARKING (BILL NO 4)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
4.2	Sub-base & Base Course				
1	Providing and laying sub-base course of stone product of approved quality and grade, including placing, mixing, spreading and compaction of sub-base material to required depth, camber grade to achieve 100% maximum modified AASHTO dry density including carriage of all material to site of work except gravel and aggregate i) Crushed stone aggregate.	Cm	84,050.00		
2	Providing and laying (WBM) base course of crushed stone aggregate of approved quality and grade and supply and spreading of stone screening, including placing, mixing, spreading and compaction of base course material to required depth, camber and grade to achieve 100% maximum modified AASHTO dry density, including carriage of all materials to site of work except gravel and aggregate.	Cm	55,956.00		
Total Cost					





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF PERIPHERY ROAD ALONG TOMB TO MAIN PARKING (BILL NO.4)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
BILL No. 4.3	Surface Courses & Pavement				
1	Providing and laying bituminous priming coat, using 10 lbs kerosene oil and 10 lbs. binder per 100 Sft. or 0.5 Kg binder and 0.5 Kg binder per square metre.	100 Sft	115.703.00		
2	(Asphaltic Base Course) Providing and laying plant premixed bituminous carpet, including compaction and finishing to required camber, grade and density. a) 4% Bitumen	Cft	28.849.00		
3	Providing and laying bituminous tack coat using 10 lbs bitumen per 100 Sft (0.49 Kg of Bitumen per sq.m.)	100 Sft	115.703.00		
4	(Asphaltic Wearing Course) Providing and laying plant premixed bituminous carpet, including compaction and finishing to required camber, grade and density a) 4.5% Bitumen	Cft	18.995.00		
Total Cost					



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF PERIPHERY ROAD ALONG TOMB TO MAIN PARKING (BILL NO.4)
BILL OF QUANTITIES

Sl. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 4.4	Accessory Works				
1	Providing and laying Tuff pavers, having 7000 PSI, crushing strength of approved manufacturer, over 2" to 3" sand cushion i/c grouting with sand in joints i/c finishing to require slope complete in all respect. (50% Gray / 50% Coloured)				
	b) 50-mm thick	Sft	47,243.20		
2	Painting Traffic Lane Marking of specified width (1.5mm thick), with Thermoplastic (TP) Paint including Glass Beads, complete in all respect, as approved and directed by Engineer incharge. ii) 16" wide)	Sft	20,996.00		
3	Painting Arrows & Zebra crossings (1.5mm thick), with the Thermoplastic (TP) Paint including Glass Beads, complete in all respect.	Sft	3,443.00		
4	Providing & fixing Cat Eyes of size 6" x 6" x 3/4" duly casted with specified material having plastic strip containing mini retro-reflective glass beads of color white/ red/ yellow having specified reflections, quality & shape i/c the cost of self built in 12mm dia x 120mm long steel zinc plated nail, fixing to road with epoxy/ hammering with separate nail complete. a) Acrylic material (2) Uni-Directional iii) 4) Glass beads on side	Nos	2,376.00		
5	Providing & fixing Road Studs of aluminium alloy (raised profile) of specified size with Diamond grade reflectors on both sides etc complete. b) Dual-Directional ii) 6" x 4" x 1.75"	Nos	71.00		
6	Providing and fixing precast Edge Kerb Stone (100mmx150mmthick), of 3500 PSI Compressive Strength, embedded in PCC 1:2:4 over lean concrete 1:4:8 etc. Complete in all respect. b) With Painting iii) (300x150x450mm height)	Rft	8,268.00		
7	Providing & fixing precast Edge Kerb Stone (4" to 6" thick) and 14" high of Compressive Strength of 3500 PSI laid in cement sand mortar (1:3) over pre-laid brick masonry for drain cum footpath etc. complete in all respect. ii) Without painting	Rft	8,268.00		
8	Providing, fabrication and fixing pole mounted Direction Board / road delineator of any shape and size, with specified Steel and thickness supported with C.I Channel, (excluding the cost of vertical post and painting) etc complete in all respect. A) G.I Sheet 14 SWG i) CIRCULAR/TRIANGULAR ii) 3-4 ft size	Sft	129.00		



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF PERIPHERY ROAD ALONG TOMB TO MAIN PARKING (BILL NO.4)
BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
9	Providing, fabrication and fixing pole mounted Direction Board / road delineator of any shape and size, with specified Sheet and thickness, supported with G.I Channel, (excluding the cost of vertical post and painting) etc complete in all respect. (i) RECTANGULAR SHAPE				
	a) 12 -48 s/r	Sft	86.00		
	b) 54 -120 s/r	Sft	269.00		
10	If 3mm thick Aluminium sheet is used instead of G.I Sheet, following composite rates shall be added:				
	a) 5-4 ft size	Sft	129.00		
	b) 12 -48 s/r	Sft	86.00		
	c) 54 -120 s/r	Sft	269.00		
11	Providing fabrication and fixing Vertical Post comprising of medium quality G.I Pipe of specified diameter, including the cost of clamping arrangements, top cover, hold fasts, PCC 1:2:4 footing of specified depth and excavation etc complete in all respect, as approved and directed by the engineer incharge				
	b) 3 inch diameter (footing 1.5x1.5x3)	PP	86.00		
	c) 4 inch diameter (footing 1.5x1.5x6)	PP	86.00		
	(d) 5 inch diameter (footing 2.0x2.0x6)	PP	86.00		
	e) 6 inch diameter (footing 2.0x2.0x6)	PP	86.00		
12	Lettering and printing of signages/ direction boards/ road delineators of any colour by machine (to cost of Digital Lettering Lamination & pasting etc. Complete in all respect. Diamond Grade Ta	Sft	464.00		
Total Cost					



RAW URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF PERIPHERY ROAD ALONG TOMB TO MAIN PARKING (BILL NO.4)
BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 4.5	Drainage Works				
1	Earthwork excavation in open cutting for storm water channels, drains, sully drains in open areas, roads, streets lanes, including under pinning of walls and shoring to protect existing works, shuttering and timbering the trenches, dressed to designed level and dimensions, bracing, removal of surface water from trenches, back filling and surplus excavated material disposed of and dressed within 50 ft (15 m) lead:- (1) Upto 5' (1.5 meter) depth (2) Upto 5' (1.5 meter) depth B) By Mechanical means Ordinary	1000 CR	50.289.00		
	100 CR	1.342.00			
3	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregates): Ratio 1: 4: 8	Ch	2,295.00		
4	Placing, compacting, finishing and curing of concrete using Ordinary Portland Cement / Sulphate resisting cement / Slag cement as may be required, including screening, washing of aggregates and mixing of constituents using batching plant, Transportation by transit mixer, pouring with pump in the required proportions to achieve a nominal cylindrical strength in the field as per ACI214, with the specified consistency, i/c the cost of shuttering, compaction with Vibrator, excluding the cost of Admixture, as approved and directed by the Engineer in charge. (a) Reinforced cement concrete in roof slab, beams, columns, walls, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects - (i) 4000 PSI (b) Retaining / Shear walls laid in situ or precast laid in position, or prestressed members cast in situ (formwork on both sides) (iv) 4000 PSI (c) Upto 9" thick (c) Substructure (Foundations, Raft, Strip and Footing Beams) (iv) 4000 PSI	CR	3,108.00		
		CR	10,805.00		
		CR	3,108.00		
5	Fabrication of mild steel reinforcement for cement concrete including cutting, bending, laying in position, making joints and fixings including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars):- (b) Deformed bars (i) Grade-60	Tons	50.38		
6	Bitumen coating to plastered or cement concrete surface:- (i) 20 lbs. per 100 Sft. (9.07 kg per Sqm)	100 Sft	68,179.00		



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF PERIPHERY ROAD ALONG TOMB TO MAIN PARKING (BILL NO.4)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
7	Providing and embedding 10" (250mm) wide PVC water stopper in expansion joints of RCC structures (Retaining walls, water tanks, Slabs) complete in all respect. 10mm Thick	Rft	8,679.00		
8	Filling expansion joints with bitumen, sand & saw dust in ratio 1:2:2.	Rft	1,158.00		
Total Cost					



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF PERIPHERY ROAD ALONG TOMB TO MAIN PARKING (BILL NO.4)
ELECTRICAL WORKS (BILL NO. 4.6)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
	Design, supply, transportation, storage, installation, testing and commissioning of the following items of work, including all material, labour, tools and accessories etc. required for proper completion of each item as per specification, drawings and/or as directed by the Engineer.				
	<u>LED Road & Flood Light Fixtures</u>				
802(b)	Flood Lighting LED Luminaries - 20W make Signify (Ph4ps), Schrader, Tungsram (Sb) or equivalent suitable for M-2 & M-3 roads of wattage suitable for the project requirements, fully IP 65 with corrosion resistant die cast aluminium housing, silicon gas kit, thermally hardened glass complete with LED drivers, surge protection and all accessories/ components required for the proper operation of the system. The luminaries shall be fully flexible for future upgrades and easy replacements for maintenance purposes. Contractor to submit lighting design calculation as per the offered light fixtures.	No.	39.00		
	<u>Conduits / Pipes</u>				
803(a)	PVC pipe/conduit Class-D 100 mm dia with accessories suitable for laying multi-core cables in trenches/directly buried on road crossings including excavation.	Rm	400.00		
803(b)	PVC pipe/conduit Class-B 100 mm dia with accessories suitable for laying multi-core cables in water/air/structure.	Rm	200.00		
803(c)	PVC pipe/conduit Class-B 100 mm dia with accessories suitable for laying multi-core cables from pole to pole in trenches/directly buried including excavation.	Rm	1,600.00		
	<u>Low Voltage Power Cables</u>				
804 (a)	PVC insulated, PVC sheathed 4 core 25 mm ² , 600/1000 volt non armoured copper conductor cable for service connection, in pre-laid pipe/G.I. wire/trenches, etc. (rate for cable only)	Rm	410.00		
804 (b)	Single core 25mm ² PVC insulated copper conductor 450/750 volts cable, in pre-laid PVC pipe/M.S. conduit/G.I. pipe/wooden strip battan/wooden casing or capping/G.I. wire/trenches (rate for cables only)	Rm	210.00		
804(c)	PVC insulated, PVC sheathed 4 core 16 mm ² , 600/1000 volt non armoured copper conductor cable for service connection in pre-laid pipe/G.I. wire/trenches, etc. (rate for cable only)	Rm	2,400.00		
804 (d)	Single core 16mm ² PVC insulated copper conductor 450/750 volts cable, in pre-laid PVC pipe/M.S. conduit/G.I. pipe/wooden strip battan/wooden casing or capping/G.I. wire/trenches (rate for cables only)	Rm	2,810.00		



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
(IMPROVEMENT OF PERIPHERY ROAD ALONG TOMB TO MAIN PARKING (BILL NO.4)
ELECTRICAL WORKS (BILL NO. 4.6)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
805	Lighting control panel with angle iron frame standard 14 SWG, sheet steel enclosure having high quality powder coated paint, color RAL 7032. The LCP shall be complete with incoming and outgoing MCCBs, Cu bus bars, magnetic contactors, photo-electric switches, meters, indication lights, construction with IP 54 protection class, door locking arrangement etc. and all other accessories as required for quality work. MATERIAL 1 No. incoming 63 Amp. (adj.) TP. MCCB, 25 kA 4 No. outgoing 25 Amp. (adj.) TP MCCBs, 25 kA 2 No. outgoing 25 Amp. (adj.) TP MCCBs, 25 kA (Spares) 4 No. 32 Amp. magnetic contactor 2 No. 32 Amp. magnetic contactor (Spares) 3 No. photo-electric switches with timers and relays a) 1 No. ammeters 0-100 Amp, with selector switch (04 position) and CT of 100/5 Amp b) 3 No. indication lights c) 1 No. voltmeter with fuse and 7 position selector switch. d) 3 Ph, N & Earth copper bus bars internal wiring & line-up terminals e) Brass cable glands/accessories f) 06 Nos. Auto-Manual-OFF (3 position switches for operation in auto (with photocell) and normal (manual mode-photocell) over-ride) g) 06 Nos. CN & 06 Nos. OFF push button switches with indicator lights h) Panel Light with limit switch Price Estimated/Quoted/As per Specs	Job	1.00		
807	Oil cooled type Step down Power Transformer pole mounted of 25 kVA rating, 11/0.415 KV, to the east of lifting hooks, thermometers, LT & HT bushing 5-steps tap changer, imported double float Buchholz relay, 2 earthing terminals, roller wheels, connecting terminals for cables M.S. box on transformer in order to cover complete L.T side, all necessary materials required for connections on HT & LT side, safety voltage 11000/415/240 V impedance 4% or as specified by WAPDA/IEC system earth. Delta / Star neutral solidly earthed, to Wapra testing charges, complete in all respects made of PFI, Siemens Transpower, limited or as approved and directed by the Engineer Incharge with three phase energy meter.	Job	1.00		
808	11KV Cable and Termination Kit				
a)	11KV cable 3-core 120mm ² XLPE/PVC/SWA/PVC cable with aluminium conductor voltage grade-8.7/15 KV	Rm	250.00		
b)	Providing and fixing installation indoor 3-core 120mm ² 11KV, XLPE, heat shrink termination Kit complete in all respect as required.	Job	2.00		
c)	Providing and fixing installation outdoor 3-core 120mm ² 11KV XLPE heat shrink termination Kit complete in all respect as required.	Job	2.00		
Total Cost					





MAIN PARKING





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF MAIN PARKING (BILL NO. 5)
SUB SUMMARY



Bill No.	Item Description	Amount In (Rs.)
5.1	Earthwork and Allied Activities	
5.2	Sub-base & Base Course	
5.3	Ancillary Works	
5.4	Drainage Works	
5.5	Electrical Works	
	TOTAL CONSTRUCTION COST	





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF MAIN PARKING (BILL NO. 5)

BILL OF QUANTITIES

Sl. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 5.1	Earthwork and Allied Activities				
1	Angle clearance and removing within 100 ft. (30 m)				
	a) Ordinary	1000 Sq	244,790.00		
	b) Heavy	1000 Sq	104,910.00		
2	Compaction of earthwork with power road roller, including ploughing, mounding, infusing earth to optimum moisture content etc. complete				
	95% to 100% maximum modified AASHTO dry density.	1000 Cft	120,530.00		
	90% maximum modified AASHTO dry density	1000 Cft	51,866.00		
3	Excavation undressed lead upto 8 ft. throw				
	a) In ordinary soil.	1000 Cft	349,630.00		
4	Earthwork in ordinary soil for embankments, including ploughing, mounding and compacting by mechanical means at optimum moisture content and dressing to designed section including lead and lift, complete in all respects:				
	1) 95% to 100% maximum modified AASHTO dry density	Cft	314,833.00		
5	Providing and laying good quality / best sand cushion from approved source (compacted in layers not exceeding 6" thickness) by mechanized means including the cost of front loader, vibratory roller and all lead and lifts, dressing, watering complete in all respect as approved and directed by the Engineer.	Cft	349,830.00		
Total Cost					





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF MAIN PARKING (BILL NO. 5)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 5.2	Sub-base & Base Course				
1	Providing and laying sub-base course of stone product of approved quality and grade. Including placing, mixing, spreading and compaction of sub-base material to required depth, camber, grade to achieve 100% maximum modified AASHTO dry density, including carriage of all material to site of work except gravel and aggregates.				
	1:1 Crushed stone aggregate	CMT	189.712.07		
Total Cost					



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF MAIN PARKING (BILL NO. 5)
BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bil No. 5.3	Ancillary Works				
1	Providing and laying Tuff pavers, having 7000 PSI, crushing strength of approved manufacturer, over 2" to 3" sand cushion with grouting with sand in joints etc finishing to require slope complete in all respect. (50% Gray / 50% Coloured)				
	b) 50-mm thick	Sft	17,448.44		
	c) 80-mm thick	Sft	349,830.00		
2	Painting Traffic Lane Marking of specified width (1.5mm thick) with Thermoplastic (TP) Paint including Glass Beads, complete in all respect, as approved and directed by Engineer incharge. ii) 6" wide	Rft	22,258.00		
3	Painting Arrows & Zebra crossings (1.5mm thick) with the Thermoplastic (TP) Paint including Glass Beads, complete in all respect.	Sft	3,650.00		
4	Providing & fixing Cat Eyes of size 4" x 4" x 3/4" duly coated with specified material having plastic strip containing mini retro-reflective glass beads of color white or yellow having specified reflectivity, quality & shape to the coat of self built in 12mm dia x 120mm long steel zinc plated nail, fixing to road with epoxy hammering with separate nail complete. a) Acrylic material (2) Uni-Directional (ii) 43 Glass beads a side	Nos	2,517.00		
5	Providing & fixing Road Studs of aluminium alloy (raised profile) of specified size with Diamond grade reflectors on both sides etc complete b) Dual- Directional (ii) 6" x 4" x 1.75"	Nos	76.00		
6	Providing and fixing precast Edge Kerb Stone (100mm to 150mm thick), of 3500 PSI Compressive Strength, embedded in P.C.C. 1:2:4 over lean concrete 1:4:8 etc. Complete in all respect. ii) With Painting (ii) (300x150x450mm high)	Rft	4,987.00		
7	Providing & fixing precast Edge Kerb Stone (4" to 6" thick) and 14" dia of Compressive Strength of 3500 PSI laid in cement sand mortar (1:3) over pre-laid brick masonry for drain cum footpath complete in all respect. ii) Without painting	Rft	1,000.00		
8	Providing fabrication and fixing pole mounted Direction Board / reflector of any shape and size with specified Shape and Thickness supported with G.I Channel, (excluding the cost of metal post and painting) etc complete in all respect. (A) G.I Sheet 14 SWG CIRCULAR/TRIANGULAR ii) 14" size		129.00		





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF MAIN PARKING (BILL NO. 5)
BILL OF QUANTITIES

Sr No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
9	Providing, fabrication and fixing pole mounted Direction Board/ road delineator of any shape and size, with specified Sheet and thickness, supported with G.I Channel, (excluding the cost of vertical post and painting) etc complete in all respect ii) RECTANGULAR SHAPE				
	i) 12 - 48 sq	Sft	86.00		
	ii) 54 - 120 sq	Sft	263.00		
10	If 3mm thick Aluminum sheet is used instead of G.I Sheet, following composite rates shall be added.				
	a) 3-4 ft size	Sft	123.00		
	i) 12 - 48 sq	Sft	86.00		
	ii) 54 - 120 sq	Sft	263.00		
11	Providing, fabrication and fixing Vertical Post comprising of medium quality G.I Pipe of specified diameter, including the cost of clamping arrangements, top cover, hold fasts, PCC 1.2.4 footing of specified depth and excavation etc complete in all respect as approved and directed by the engineer incharge				
	i) 3 inch diameter footing 1.5x1.5x6	RN	68.00		
	ii) 4 inch diameter footing 1.5x1.5x6	RN	68.00		
	iii) 5 inch diameter footing 1.5x1.5x6	RN	59.00		
	iv) 6 inch diameter footing 2.0x2.0x6	RN	53.00		
12	Lettering and printing of signages/ direction boards/ road delineators of any colour by machine (cost of Digital Lettering, Lamination & pasting etc. Complete in all respect. Diamond Grade Tape	Sft	484.00		
Total Cost					



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

CONSTRUCTION OF MAIN PARKING (BILL NO. 5)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate	Amount
BMI No. 5.4	Drainage Works				
1	Earthwork excavation in open cutting for storm water channels, drains, surface drains in open areas, roads, streets, lanes, including under piling of walls and shoring to protect existing works, shuttering and timbering the trenches, dressed to designed level and dimensions, trimming, removal of surface water from trenches, back filling and surplus excavated material disposed of and dressed in 50 ft (15 m) lead:- 1) Upto 5' (1.5 meter) depth 1) Upto 5' (1.5 meter) depth By Mechanical means Ordinary	100 CU CU	37,710.00		
2	Applying and filling seal under floor; or plugging in wells	100 CFT	1,000.00		
3	Cement concrete plain including placing, compacting, finishing and curing complete including screening and mixing of stone aggregate in 1:4:8	100 CFT	2,894.00		
4	Face brick work other than building upto 10ft. (3 m height) a) cement sand mortar Ratio 1:4	100 CFT	924.00		
5	Cement plaster 1:4 upto 20' (6.00 m) height-b) 1/2" (13 mm) thick	100 SQ	1,132.00		
6	Placing, compacting, finishing and curing of concrete using Ordinary Portland Cement / Sulphate resisting cement / Slag cement as may be required; including screening, washing of aggregates and mixing of constituents using batching plant, Transportation by transit mixer, pouring with pump in the required proportions to achieve a nominal cylindrical strength in the field as per ACI 214, with the specified consistency, if the cost of shuttering, compaction with Vibrator, including the cost of Admixture as approved and directed by the Engineer incharge.				
	Reinforced cement concrete in roof slab, beams, columns lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects.- 4000 PSI	Per Cft	3,268.00		
	(b) Retaining/ Shear walls laid in situ or precast laid in position, or prestressed members cast (Formwork on both sides) 1) Upto 5' thick 4000 PSI	Per Cft	4,168.00		
	(c) Substructure (Foundations, Ret. Strip and Footing Beams) (v) 4000 PSI	Per Cft	3,509.00		
7	Fabrication of mild steel reinforcement for cement concrete including cutting, bending, laying in position, making joints and fastenings, including cost of bending wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars):-1b) Deformed bars III (Grade-60)	Kg	35,576.00		
8	Surface coating to plastered or cement concrete surface 20 lbs. per 100 Sft (0.7 kg per sqm)	100 Sft	17,806.00		
9	Providing and embedding 10" (250mm) wide PVC water stopper in expansion joints of RCC structures (Retaining walls, water table Slabs) complete in all respect. 10mm Thick	RM	5,168.00		





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF MAIN PARKING (BILL NO. 5)

BILL OF QUANTITIES

Sr No	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
10	Small iron work, such as gusset plates, knees, berds stirrups, straps, rings, etc. including cutting, drilling, fitting, handling, assembling and fixing, including erection in position.	100Kg	1.895.00		
Total Cost					

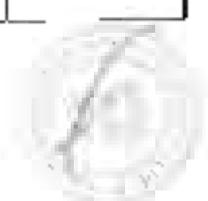




RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF MAIN PARKING (BILL NO. 5)
ELECTRICAL WORKS (BILL NO. 5.5)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
	Design, supply, transportation, storage, installation, testing and commissioning of the following items of work, including all material, labour, tools and accessories etc. required for proper completion of each item as per specification, drawings and/or as directed by the Engineer.				
801(a)	12m high single arm octagonal shape electric street light pole, made of hot dipped 4.5 mm thick (7 SWG) galvanized steel, tapered from 225 mm at bottom to 100 mm at top with 1503 mmx611 mmx4mm thick die arm for luminaire installation, duly G.I.welded with 470x470x20 mm base plate with the help of 4 no triangular stiffeners 100x350x20 mm of GI sheet, with built in junction box with shutter & one 101; no. 2A SP A/CB, 10KA breaker, & the cost of nuts & J-rag bolts, duly fixed in precast concrete foundation, foundation will be paid additionally as approved and directed by the Engineer incharge.	Each	10.00		
801(c)	15 m high conical octagonal (nut dip) galvanized steel pole with circular angular top 4 Nos. luminaire arrangement, base plate, J-rag balls, 2 Amp 3A Nos. SP A/CB, pole numbering and earthing etc. as shown on drawing.	Each	12.00		
801(d)	Road Lighting Pole Foundation	Each	22.00		
	LED Road & Flood Light Fixtures				
802(a)	Road Lighting LED Cobra-head Luminaires of 120W and 120 lm/W conforming to IP 65 & IK 08 or above Philips/Osram/Thom or NEECA approved equivalent manufacturer with corrosion resistant die casted Aluminum housing, silicon gasket in special groove, UV stable & scratch resistant synthetic materials, thermally hardened glass complete with LED Chip (Philips Lumileds/Cree/Nichia/Osram make or equivalent approved manufacturer), programmable LED driver (Harvard/TCI/Lumatech/Philips/VOSSLCH Schwabe/Lightech make or approved equivalent manufacturer), minimum 10kV surge protection rating etc. the cost of all accessories/ components required for proper operation fully flexible for future upgradation and easy replacements for maintenance purposes, bucket elevator charges as approved and directed by the Engineer incharge.	No.	10.00		
802(b)	Flood Lighting LED Luminaires 120W make Squify (Philips), Schreder, Tungstam (GE) or equivalent suitable for M-2 & M-3 roads of weightage suitable for the project requirements, fully IP 65 with corrosion resistant die cast aluminum housing, silicon gas kit, thermally hardened glass complete with LED drivers, surge protection and all accessories/ components required for the proper operation of the system. The luminaires shall be fully flexible for future upgradation and easy replacements for maintenance purposes. Contractor to submit lighting design calculation as per the offered light fixtures.	No.	12.00		
	Conduits / Pipes				
803(a)	PVC pipe/conduit Class-D 100 mm dia with accessories suitable for laying multi-core cables in trenches/directly buried on road crossings including excavation.	Rm	150.00		





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF MAIN PARKING (BILL NO. 5)
ELECTRICAL WORKS (BILL NO. 5.5)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
803(b)	PVC pipe/conduit Class-B 100 mm dia with accessories suitable for laying multi-core cables in wells/bamers/structure	Rm	90.00		
803(c)	PVC pipe/conduit Class-B 100 mm dia with accessories suitable for laying multi-core cables from pole to pole in branches/directly buried including excavation.	Rm	994.00		
Low Voltage Power Cables					
804 (a)	PVC insulated, PVC sheathed 4 core 25 mm ² , 600/1000 volt non armoured copper conductor cable for service connection, in pre-laid pipe/G.I. wire/trenches, etc. (rate for cable only)	Rm	150.00		
804 (b)	Single core 25mm ² PVC insulated copper conductor 450/750 volts cable, in pre-laid PVC pipe/M.S. conduit/G.I. pipe/wooden strip batten/wooden casing or capping/G.I. wire/trenches (rate for cables only)	Rm	70.00		
804(c)	PVC insulated, PVC sheathed 4 core 16 mm ² , 600/1000 volt non armoured copper conductor cable for service connection, in pre-laid pipe/G.I. wire/trenches, etc. (rate for cable only)	Rm	1,234.00		
804 (d)	Single core 16mm ² PVC insulated copper conductor 450/750 volts cable in pre-laid PVC pipe/M.S. conduit/G.I. pipe/wooden strip batten/wooden casing or capping/G.I. wire/trenches (rate for cables only)	Rm	384.00		
804(e)	3 Nos. 1 core 2.5 mm ² Cu/PVC 450/750 Voltage grade cable (stranded conductor) (Imported copper shall be used. Verified documentary evidence for source of copper & PVC shall be furnished prior to manufacturing) from junction box to the fitting through the hollow of pole				
i	For 12m Pole	No.	10.00		
ii	For 15m Pole	No.	12.00		



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF MAIN PARKING (BILL NO. 5)
ELECTRICAL WORKS (BILL NO. 5.5)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
005	<p>Road lighting control panel with angle iron frame cladded 14 SWG, sheet steel enclosure having high quality powder coated paint, color RAL 7032. The LCP shall be complete with incoming and outgoing MCCBs, C.I bus bars, magnetic contactors, photo-electric switches, meters, induction lights, construction with IP 54 protection class, door, locking arrangement etc. and all other accessories as required for quality work.</p> <p>MATERIAL</p> <p>1 No. incoming 53 Amp. (adj.) TP MCCB, 25 kA 4 No. outgoing 25 Amp. (adj.) TP MCCBs, 25 kA 2 No. outgoing 25 Amp. (adj.) TP MCCBs, 25 kA (Spare) 4 No. 32 Amp. magnetic contactor 2 No. 32 Amp. magnetic contactor (Spare) 3 No. photo-electric switches with timers and relays a) 1 No. ammeter 0-100 Amp, with selector switch (04 position) and CT of 100/5 Amp b) 3 No. indicator lights c) 1 No. voltmeter with fuse and 7 position selector switch d) 3 Ph. N & Earth copper bus bars Internal wiring & line-up terminals inc. Brass cable glands/accessories e) 06 Nos. Auto-Manual-OFF (3 position switches for operation in auto (with photocell) and normal (manual made photocell override) f) 06 Nos. ON & 06 Nos. OFF push button switches with indication lights g) Panel Light with limit Switch</p>	Job	2.00		
	Earthing				
006	Rod type Earth point comprising of 58mm dia. (16 mm dia) 10 ft long copper coated M.S. rod driven in ground duly fixed with clamp with Tinned earth test link copper plate (300x50x10mm) to the cost of brass nuts, spacers, bolts, washers keys etc. complete in all respect including earth pit and ROC cover	Each	2.00		
	Pole Mounted Transformer				
007 As per WAPDA Specs.	Oil coated type, Step down Power Transformer pole mounted of 25 kVA rating, 11/0.415 kV, to the cost of lifting hooks, thermometers, LT & HT bushing 5-steps, tap changer, imported double float buchholz relay, 2 earthing terminals, roller wheels, connecting terminals for cables M.S box on transformer in order to cover complete L T side, all necessary materials required for connections on HT & LT side, rated voltage 11000/415/240 V impedance 4% or as specified by WAPDA/IEC system earth. Delta / Star, neutral solidly earthed, in Wapda testing charges, complete in all respects made of PEL, Siemens, T power, Etmetec or as approved and directed by the Engineer incharge with three phase energy meter.	Job	1.00		
009	11KV Cable and Termination Kit				
a)	11KV cable 3-core 120mm ² XLPE/PVC-SWAPVC cable with aluminum conductor voltage grade: 8.7/15 kV	Run	673.00		
b)	Providing and fixing installation indoor 3-core 120mm ² , 11KV, XLPE heat shrink termination Kit complete in all respect as required.	Job	2.00		



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
CONSTRUCTION OF MAIN PARKING (BILL NO. 5)
ELECTRICAL WORKS (BILL NO. 5.5)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
01	Wiring and termination outdoor 3-core 120mm ² 1KV, XLPE, heat shrink termination kit complete in all respect as required	Lot	2.00		
Total Cost					





EXISTING PARKING





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF EXISTING PARKING (BILL NO. 6)
SUB SUMMARY



Bill No.	Item Description	Amount in (Rs.)
6.1	Earthwork and Allied Activities	
6.2	Sub-base & Base Course	
6.3	Ancillary Works	
6.4	Drainage Works	
6.5	Dismantling of Existing Structure	
6.6	Electrical Works	
	TOTAL CONSTRUCTION COST	





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF EXISTING PARKING (BILL NO. 6)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
BII	Earthwork and Allied Activities				
5.1	1 Jungle clearance and removing within 100 ft. (30 m)				
	a) Ordinary	1000 SH	37,860.00		
	b) Heavy	1000 SH	10,140.00		
2	Compaction of earthwork with power road roller, including ploughing, mixing, moistening earth to optimum moisture content in layers etc. complete				
	i) 95% to 100% maximum modified AASHTO dry density	1000 CR	13,540.00		
	ii) 90% maximum modified AASHTO dry density.	1000 CR	7,940.00		
3	Earthwork excavation undressed least upto a single throw of Kassi (mohar) or shovel:				
	i) in ordinary soil.	1000 CR	10,771.00		
4	Earthwork in ordinary soil for embankments, including ploughing, mixing and compaction by mechanical means at optimum moisture content and dressing to designed section including all lead and lift, complete in all respects -				
	i) 95% to 100% maximum modified AASHTO dry density.	CR	9,712.00		
5	Earthwork with Borrow in ordinary soil for embankments, including ploughing, mixing and compaction by mechanical means at optimum moisture content and dressing to designed section including all lead and lift, complete in all respects -				
	With 95% to 100% Compaction of AASHTO dry density.	CR	166,953.00		
6	Providing and laying good quality local sand cushion from approved source (compacted in layers not exceeding 5" thickness) by mechanized means including the cost of front end loader, vibratory roller and all lead and lifts, dressing, watering complete in all respect as approved and directed by the Engineer in charge.	CR	10,771.00		
Total Cost					

* RUDA *





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF EXISTING PARKING (BILL NO. 8)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 0.2	Sub-base & Base Course				
1	Providing and laying sub-base course of stone product of approved quality and grade, including placing, mixing, spreading and compaction of sub-base material to required depth, camber, grade to achieve 100% maximum modified AASHO dry density, including carriage of all material to site of work except gravel and aggregate				
	ii. Crushed stone aggregate	Cm	28,252.00		
Total Cost					





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF EXISTING PARKING (BILL NO. 5)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
64) 5.3	Ancillary Works				
1	Providing and laying Tuff pavers, having 7000 PSI, crushing strength of approved manufacturer, over 2" to 3" sand cushion w/c grouting with sand in joints w/c finishing to require slope complete in all respect (50% Grey / 50% Coloured) of 80-mm thick	Sft	63,820.00		
2	Painting Traffic Lane Marking of specified width (1.5mm thick), with Thermoplastic (TP) Paint including Glass Beads, complete in all respect, as approved and directed by Engineer incharge, (6" wide)	Rft	14,000.00		
3	Painting Arrows & Zebra crossings (1.5mm thick), with the Thermoplastic (TP) Paint including Glass Beads, complete in all respect.	Sft	2,295.00		
4	Providing & fixing Cat Eyes of size 4" x 4" x 3/4" duly coated with specified material having plastic strip containing mini retro-reflective glass beads of color white (or) yellow having specified reflectance, quality & shape like the coat of self built in 12mm dia x 120mm long steel zinc plated nail, fixing to road with epoxy/hammering with separate nail complete. a) Acrylic material (2) Uni-Directional 43 Nos. on each side	Nos	1,584.00		
5	Providing & fixing Road Studs of aluminum alloy (raised profile) of specified size with Diamond grade reflectors on both sides etc complete. b) Dual Directional (ii) 6" x 4" x 1.75"	Nos	48.00		
6	Providing & fixing precast concrete Stone (4" to 6" thick) and 14" High of Compressive Strength of 3500 PSI laid in cement sand mortar (1:3) over pre-laid brick masonry for drain curb footpaths etc complete in all respect. Without painting	RR	2,625.00		
7	Providing, fabrication and fixing pole mounted Direction Board / road delineator of any shape and size, with specified Sheet and thickness, supported with G.I Channel, (excluding the cost of erection post and painting) etc complete in all respect A) G.I Sheet 14 SWG 1) CIRCULAR/TRIANGULAR a) 3-4 ft size	Sft	75.00		
8	Providing, fabrication and fixing pole mounted Direction Board / road delineator of any shape and size, with specified Sheet and thickness, supported with G.I Channel, (excluding the cost of erection post and painting) etc complete in all respect a) RECTANGULAR SHAPE a) 3-4 ft size b) 5-6 ft size	SR SR	100.00 100.00		
9	If 3mm thick Aluminium sheet is used instead of G.I Sheet, following composite rates shall be added a) 3-4 ft size b) 5-6 ft size	SR SR	75.00 100.00		





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF EXISTING PARKING (BILL NO. 6)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
	(b) 54 -120 sh	Sh	183.00		
10	Providing, fabrication and fixing Vertical Post comprising of medium quality G.I Pipe of specified diameter, including the cost of clamping arrangements, top cover, hole PCC 1:2:4 footing of specified depth and excavation etc complete in all respect, as approved and directed by the engineer incharge				
	(b) 3 inch diameter (footing 1.5'x1.5'x5')	Rt	33.00		
	(c) 4 inch diameter (footing 1.5'x1.5'x6')	Rt	33.00		
	(d) 5 inch diameter (footing 1.5'x1.5'x6')	Rt	38.00		
	(e) 6 inch diameter (footing 2.0'x2.0'x6')	Rt	38.00		
11	Lettering and painting of signage/ direction boards/ road delineators of any colour by machine etc cost of Digital Lettering Lamination & sealing etc. Complete in all respect b) Diamond Grade Tape	Sft	323.00		
Total Cost					





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF EXISTING PARKING (BILL NO. 6)
BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 6.4	Drainage Works				
1	Earthwork excavation in open cutting for storm water channels, drains, siltage drains in open areas, roads, streets, lanes, including underpinning of walls and shoring to protect existing works, shuttering and timbering the trenches, dressed to designed level and dimensions, trimming, removal of surface water from trenches, back filling and surplus excavated material disposed of and dressed within 50 ft. (15 m) lead.- (i) Upto 5' (1.5 meter) depth 1) Upto 5' (1.5 meter) depth B) By Mechanical means Ordinary	1000 CM	15,400.00		
2	5 mm in and 10 mm in size bar or mesh in walls	100 SQ FT	1,240.00		
3	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate): (i) Ratio 1: 4: 8	100 Cft	1,100.00		
4	Peena brick work other than building upto 10ft. (3 m) height (i) cement, sand mortar- Ratio 1: 4	100 Cft	453.00		
5	Cement plaster 1:4 upto 20' (6.00 m) height -b) 1/2" (13 mm) thick Placing, compacting, finishing and curing of concrete using Ordinary Portland Cement / Sulphate resisting cement / Slag cement as may be required, including screening, washing of aggregates and mixing of constituents using batching plant. Transportation by transit mixer panning with pump in the required proportions to achieve a nominal cylindrical strength in the field as per ACI 214 with the specified consistency. (c) the cost of shuttering, compaction with vibrator, excluding the cost of Admixture, as approved and directed by the Engineer incharge.	100 SQ	666.00		
6	Reinforced cement concrete in roof slab, beams, columns, inlets, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects.- 4000 PSI (b) Retaining/ Shear walls laid in situ or precast laid in position, or prestressed members cast (Formwork on both sides) (i) Upto 9" thick 4000 PSI (c) Substructure (Foundations, Ret. Smp and Footing Beams) (iv) 4000 PSI	Per Cft	1,340.00		
		Per Cft	1,672.00		
		Per Cft	1,327.00		
7	Fabrication of mild steel reinforcement for cement concrete including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars).-(b) Deformed bars (i) (20mm dia)	Kg	14,368.00		
8	Waterproofing coating to plastered or cement concrete surface 20 lbs. per 100 SQ FT (0.07 Kg per sqm)	100 SQ	7,143.00		
9	Water stopper in expansion joints of RCC structures (Retaining walls, water tanks, basins) complete in all respects. 1" Thick	RH	2,072.00		

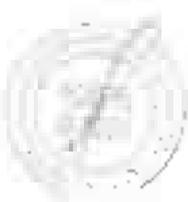




RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMBS OVER RAVI RIVER
IMPROVEMENT OF EXISTING PARKING (BILL NO. 6)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
10	Small iron work, such as gusset plates, knees, bands stirrups, straps, rings, etc. including cutting, drilling, riveting, handling, assembling and fixing, including erection in position.	100Kg	800.00		
Total Cost					





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF EXISTING PARKING (BILL NO. 6)

ABSTRACT OF COST

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 6,5	Dismantling				
1	Dismantling cement concrete 1:2:4 plain.	100Cm	3,290.00		
	Dismantling cement concrete plain 1:4:8 plain.	100Cm	4,700.00		
2	Dismantling Tuff tile	Per Sqft	1,410.00		
3	Dismantling brick work in lime or cement mortar.	100Cm	4,230.00		
4	Dismantling cement concrete reinfo. separating reinforcement from concrete, cleaning and straightening rebar.	100Cm	2,620.00		
5	Removal of Kerb Stone	Rll	400.00		
6	Removal of unsuitable material from site.	Cm	55,681.00		
7	Recovery of brick work	No s	26,551.00		
8	Recovery of steel	kg	3,982.64		
Total Cost					

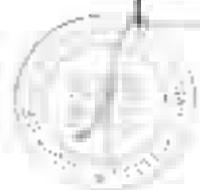




RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF EXISTING PARKING (BILL NO. 6)
ELECTRICAL WORKS (BILL NO. 6.6)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
	Design, supply, transportation, storage, installation, testing and commissioning of the following items of work, including all material, labour, tools and accessories etc. required for proper completion of each item as per specification, drawings and/or as directed by the Engineer.				
801(a)	12m high single arm octagonal shape electric street light pole, made of dipco 4.5 mm thick (7 SWG) galvanized steel, tapered from 225 mm at bottom to 100 mm at top with 1500 mm x 60 mm minimum thick dia. arm for luminaire installation, duly G.l.welded with 470x470x20 mm base plate with the help of 4 no. triangular stiffeners 100x350x20 mm of GI steel with built in junction box with shuter & one (01) no. 2A SP MCB 10kA breaker, the cost of nuts & J-rag bolts, duly fixed in precast concrete foundation, foundation will be paid additionally as approved and directed by the Engineer incharge.	Each	5.00		
801(b)	15 m high conical octagonal (hot dip galvanized steel pole with circular angular top 4 Nos. luminaire arrangement, base plate, J-rag bolts, 2 nos. 04 Nos. SP MCB, pole numbering and earthing etc. as shown on drawing.	Each	6.00		
801(d)	Fixed Lighting Pole Foundation	Each	11.00		
LED Road & Flood Light Fixtures					
802(a)	Road Lighting LED Cobra-head Luminaries of 120W and 120 lumens conforming to IP 66 & IK 08 or above Philips/Osram/Thorn or NCC approved equivalent manufacturer with corrosion resistant die cast Aluminium housing, silicon gasket in special groove, UV stable & resistant synthetic materials, thermally hardened glass, complete with LED Chip (Philips Lumileds/Cree/Nichia/Osram make or equivalent approved manufacturer), programmable LED driver (Harvard/ITE/Imotech/Philips/MOSSELOH/Schwalbe/igtech make or approved equivalent manufacturer), minimum 10kV surge protection rating to the cost of all accessories components required for proper operation, fully flexible for future upgradation and easy replacements for maintenance purposes. bucket slaver charges as approved and directed by the Engineer incharge.	No.	5.00		
802(b)	Flood Lighting LED Luminaries 120W make Signify (Philips), Schreder, Tungram (GE) or equivalent suitable for M-2 & M-3 roads of wattage suitable for the project requirements, fully IP 65 with corrosion resistant die cast aluminum housing, silicon gas kit, thermally hardened glass complete with LED drivers, surge protection and all accessories components required for the proper operation of the system. The luminaries shall be fully flexible for future upgrades and easy replacements for maintenance purposes. Contractor to submit lighting design calculation as per the offered light fixtures.	No.	6.00		
Conduits / Pipes					
803(a)	PVC pipe/conduit Class-D 100 mm dia with accessories suitable for laying multi-core cables in trenches/directly buried on road crossings including excavation.	Rm	100.00		
803(b)	PVC pipe/conduit Class-B 100 mm dia with accessories suitable for laying multi-core cables in walls/barristers/structure.	Rm	50.00		





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF EXISTING PARKING (BILL NO. 6)
ELECTRICAL WORKS (BILL NO. 6.6)



BILL OF QUANTITIES

Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
803(c)	PVC pipe/conduit Class-B 100 mm dia. with accessories suitable for laying multi-core cables from pole to pole in trenches/directly buried including excavation.	Rm	800.00		
	Low Voltage Power Cables				
804 (a)	PVC insulated, PVC sheathed 4 core 25 mm ² , 600/1000 volt non-armoured copper conductor cable for service connection, in pre-laid pipe/G.I. wire/trenches, etc. (rate for cable only)	Rm	110.00		
804 (b)	Single core 25mm ² PVC insulated copper conductor 450/750 volts cable in pre-laid PVC pipe/M.S. conduit/G.I. pipe/wooden strip/batten/wooden casing or capping/G.I. wire/trenches (rate for cables only)	Rm	80.00		
804(c)	PVC insulated PVC sheathed 4 core 16 mm ² , 600/1000 volt non-armoured copper conductor cable for service connection, in pre-laid pipe/G.I. wire/trenches, etc. (rate for cable only)	Rm	950.00		
804 (d)	Single core 16mm ² PVC insulated copper conductor 450/750 volts cable in pre-laid PVC pipe/M.S. conduit/G.I. pipe/wooden strip/batten/wooden casing or capping/G.I. wire/trenches (rate for cables only)	Rm	1,050.00		
804(e)	3 Nos. 1 core 2.5 mm ² Cu-PVC 450/750 Voltage grade cable (stranded conductor) (Imported copper shall be used. Verified documentary evidence for source of copper & PVC shall be furnished prior to manufacturing) from junction box to the fitting through the hollow of pole.				
i	For 12m Pole	No	5.00		
ii	For 15m Pole	No	6.36		
305	Road lighting control panel with angle iron frame clad 14 SWG, sheet steel enclosure having high quality powder coated paint, color RAL 7032. The LCP shall be complete with incoming and outgoing MCCBs, Cu bus bars, magnetic contactors photo-electric switches meters, indication lights, construction with IP 54 protection class, door, locking arrangement etc. and all other accessories as required for quality work. MATERIAL 1 No. incoming 63 Amp (adj.) TP, MCCB, 25 kA 4 No. outgoing 25 Amp (adj.) TP MCCBs, 25 kA 2 No. outgoing 25 Amp. ITP MCCBs, 25 kA (Spare) 4 No. 32 Amp. magnetic contactor 2 No. 32 Amp. magnetic contactor (Spare) 3 No. photo-electric switches with timers and relays a) 1 No. ammeters 0-100 Amp, with selector switch (04 position) and CT of 100/5 Amp b) 3 No. indication lights c) 1 No. voltmeter with fuse and 7 position selector switch d) 3 Ph, N & Earth copper bus bars Internal wiring & line-up terminals etc. Brass cable glands/accessories e) 06 Nos. Auto-Manual-OFF (3 position switches for operation in auto with photocell) and normal (manual mode-photocell) override f) 06 Nos ON & 06 Nos OFF push button switches with indication lights g) Panel Light with Intd Switch	Job	2.30		
	Earthing				



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
IMPROVEMENT OF EXISTING PARKING (BILL NO. B)
ELECTRICAL WORKS (BILL NO. 6.6)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
805	Red type Earth point comprising of 5/8" dia (16 mm dia) 10 ft long copper coated M.S. rod driven in ground duty fixed with clamp with Tinned earth test link copper plate (300x50x10mm), ic the cost of brass nuts, spacers, bolts washers lugs etc. complete in all respect including earth pit and RUG cover.	Each	2.00		
	Pole Mounted Transformer				
807 As per WAPDA Specs.	Oil cooled type, Stop-down Power Transformer pole mounted of 25 kVA rating 110/415 kV, ic the cost of lifting hooks, thermometers, H.T & HT bushing 5-stage, tap changer, imported double feed bushholz relay, 2 earthing terminals, roller wheels, connecting terminals for cables M.S box on transformer in order to cover complete H.T side, all necessary materials required for connections on H.T & L.T side, rated voltage 11000/415/240 V impedance 4% or as specified by WAPDA/IEC system earth Delta / Star, neutral solidly earthed, ic Wapda testing charges, complete in all respects made of PEL, Siemens, Transpower Elmark or as approved and directed by the Engineer Incharge with three phase energy meter	Job	1.00		
808	MV Cable and Termination Kit				
a)	MV cable 3-core 120mm ² XLPE/PVC/SWA/PVC cable with aluminum conductor voltage grade: 11/15 kV	Rm	673.00		
b)	Providing and fixing/installation outdoor 3-core 120mm ² , 11KV XLPE, heat shrink termination Kit complete in all respect as required	Job	2.00		
	Providing and fixing/installation outdoor 3-core 120mm ² , 11KV, XLPE, heat shrink termination Kit complete in all respect as required	Job	2.00		
Total Cost					



PEDESTRIAN BRIDGE





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
PEDEBTRIAN BRIDGE (BILL NO. 7)

BILL OF QUANTITIES

Sr No	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
1	Excavation in foundation of building, bridges and other structures including dogballing, dewatering & its removal from site complete in all respect 2) a) By Excavator in m ³ ord. soil	1000 CU	3.164 00		
2	Supplying and filling sand under floor or plugging in walls	100 CB	751.20		
3	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate): i) Ratio 1 : 1 : 6	100 CB	284.30		
4	Placing, compacting, finishing and curing of concrete using Ordinary Portland Cement, Sulphate resisting cement (Sulph cement) as may be required; including screening, washing of aggregate and mixing of constituents using batching plant, Transportation by transit mixer, pouring with pump in the required proportions to achieve a nominal cylindrical strength in the field as per ACI 318, with the specified consistency; to the cost of shuttering, compaction with vibrator, excluding the cost of Admixture, as approved and directed by the Engineer incharge i) Sulphate Resisting Cement, Ratio 1 : 1 : 6 ii) 4000 PSI iii) Deformed bars (Grade-50)	100 CB	117.00		
5	Fabrication of mild steel reinforcement for cement concrete including cutting, bending, tying in position, making joints and fixings including cost of binding wire and labour charges for binding of steel reinforcement also includes removal of rust from bars:- i) Deformed bars (Grade-50)	1000 KG	6.46		
6	Plastering or painting of cement concrete surface - i) 20 lbs. per 100 Sft. (5.07 Kg per Sq. m)	100 SFT	2.028 00		
7	Fabrication of heavy steel work, with angle, tees, flat iron round iron and sheet iron for making bridges, girders, tanks, etc., including cutting, drilling, riveting, bending, assembling and fixing, including erection in position.	Tons	201.17		
8	Prepary surface and painting with Marb Glossy high chemical resistant hard wearing Polyurethane paint (Epoxy Paint) by sprayer / Brush to the cost of Primer coat, all material and labour complete in all respects as approved and directed by the Engineer incharge. i) Epoxy Coat ii) Each and every sq. ft. (1 Sq. m)	50 SQ	54,160.00		
9	Providing and fixing 2'x5' high slat railing consisting of non magnetic (304) Stainless steel 2" dia pipe ending at 15 SWG welded with vertical of 2" dia stainless steel round square pipe/Tong (diameter @ 2-1/2") on alternate slats with 3/16" long flat screw and brass rawal plugs, 3/8" diagonal stainless steel pipe of 1.2" dia passes through girts on vertical post, to stainless steel welding, fixing & polishing complete in all respects as approved and directed by the Engineer incharge.	RR	1468.50		
10	Providing and fixing of 4 ply fibre sheet complete in all respect	50 SQ	15,624.00		
TOTAL COST					





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER



BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 6	Landscapes				
1	Landscaping (Softscape, Hardscape, Benches & Ghazba etc) including the cost of annual soil, seasonal horticulture plants & watering arrangements	P.S	1.00		25,000,000.00
Total Cost					

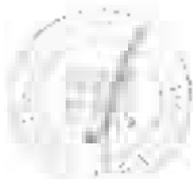




RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER
SHOPS (BILL NO. 9)
SUB SUMMARY



Sr. No.	Item Description	Amount in (Rs.)
9.1	Civil Works	
9.2	Electrical Works	
TOTAL CONSTRUCTION COST		



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

SHOPS (BILL NO. 9)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
Bill No. 9.1	Shop Works				
1	Leveling and filling sand under floor; or plugging in wells	100 Cft	1,500.00		
2	Crushed stone or stone ballast, 1½" to 2" (40 mm to 50 mm);	100 Cft	8,353.00		
3	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate) Ratio 1: 2: 4	100 Cft	7,814.00		
4	Pucca brick work in ground floor:- with sand mortar - Ratio 1:5	100 Cft	10,900.00		
5	Extra labour on item No. 3 for brickwork in First floor	100 Cft	5,732.00		
6	Pucca brick work other than building upto 10ft. (3 m) height. Ratio 1:5	100 Cft	3,394.00		
7	Providing and laying 4-1/2" thick fair face Special brick cladding (8"x4-1/2"x3") laid in (1:3) cement/ red posso mortar having 1/4" thick groove finish to the cost of 8 SWG wire in shape of 8 placed horizontally and vertically at 36" and 18" c/c respectively no cutting charges as per approved drawing, complete in all respects as approved and directed by the Engineer Incharge	Per Sq Ft	2,039.00		
8	Providing and filling vertical damp proof course with cement sand plaster and bitumen coating - (b) with 2 coats of bitumen:- i) Ratio 1:3 ii) 1/2" thick 20 mm	100 Sq Ft	720.00		
9	Placing, compacting, finishing and curing of concrete using Ordinary Portland Cement/ Sulphate resisting cement/ Slag cement as maybe required; including screening, washing of aggregates and mixing of constituents using batching plant, Transportation by transit mixer, pouring with pump in the required proportions to achieve a nominal cylindrical strength in the field as per AC 214, with the specified consistency, to the cost of shuttering, compaction with Vibrator, excluding the cost of Admixture, as approved and directed by the Engineer Incharge (a) Reinforced cement concrete in roof slab, beams, columns, lintels, girders and other structural members laid in situ or precast laid in position or prestressed members cast in situ in all cases				
	4000 PSI		10,417.00		
10	Fabrication of mild steel reinforcement for cement concrete including cutting, bending, placing in position, making joints and fastenings including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from steel)				
	(c) Deformed bars (Grade-60)	Tons	44.51		
11	Cement plaster 1:4 upto 20' (6.00 m) height - 1/2" (13 mm) thick	100 Sq Ft	32,132.00		
12	1/2" (13 mm) thick	Sq Ft	19,445.00		
13	Cement plaster 3/8" (10 mm) thick under saddle at R.C.C. roof on y, upto 20' height	100 Sq Ft	360.00		





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

SHOPS (BILL NO. 9)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
14	Providing and applying torch-on water proofing bitumen based membrane of specified thickness (made of Roof-Grip Euro Bit) fully lapped, connected by heating with Torch over ps-6 primer (to preparation) smoothen the surface complete in all respects as approved and directed by the Engineer Incharge a) Plain i) 3 mm thick	Per Sq Ft	8,608.00		
15	Khunds on roof 2'x2'x6" (600 x 800 x 160 mm)	Each	4.00		
16	Providing and applying wall putty of 2mm thickness over plastered surface (new surface) top repair the surface even and smooth complete in all respects	100 Sq Ft	44,256.00		
17	Providing and applying wall putty of 2mm thickness over plastered surface on (existing wall surface) first coat	100 Sq Ft	44,256.00		
	Providing and applying wall putty of 2mm thickness over plastered surface on (existing wall surface) subsequent coat Two coats		44,256.00		
18	Providing and applying weather shield paint of approved quality on external surface of building including preparation of surface, application of primer complete in all respects a) new surface i) 1st coat ii) 2nd coat	100 Sq Ft	33,851.00		
19	Providing and fixing terrace railing of 2" (50 mm) dia conduit pipe 18 SWG, welded with 3/8"x5/16" (18x18 mm) square bar 2.75 ft (838 mm) high fixed at 5' (1525 mm) centre to centre, in reinforced cement concrete slab with suitable arrangement, complete in all respects, as per design and drawing.	Rft	482.00		
20	Painting new surface - a) Preparing surface and painting guard bars, gates of iron bars, ironwork railing (including standards, braces, etc.) and in similar repair work: i) 1st coat ii) 2nd coat each subsequent coat of paint, 11 coats	100 Sq Ft	2,211.00		
			2,211.00		
21	Providing and fixing 2'-3" high stair railing comprising of non magnetic (304) Stair less steel 2" dia pipe railing of 18 SWG with vertical posts of 2" dia stainless steel round square pipe 1/2" long (chrome) §§ 2-1 c/c fixed on alternate steps with 3" long steel screws and brass rawal plugs. 3-Noes diagonal stainless steel pipes of 1/2" dia passes through gables fixed on vertical post, w/c stainless steel welding, fixing & polishing complete in all respects as approved and directed by the Engineer Incharge	Rft	150.00		
22	Providing and fixing 2" dia 18 SWG non-magnetic Stair less steel pipe (304) well mounted hand rail comprising fixed with 2" long steel bracket with screws w/c the cost of hardware etc. & stainless steel welding & polishing complete in all respects as approved and directed by the Engineer Incharge	Rft	75.00		
23	Providing and fixing false ceiling comprises of Gypsum board laminated sheet of size 2'x2'x3/8" 3 x 3' of specification design and thickness w/c cost of fixtures i.e. galvanized angle 1" x 1" at wall joints, galvanized tee 1 1/2" x 1" and 1 1/2" x 1" both at d/c (made of Taiwan CKM or equivalent), hanging with G.I/Copper wire 1/8" dia, G.I hook, Rawal Plug etc. complete in all respects as approved and directed by the Engineer Incharge i) 9 mm thick	Sq Ft	14,211.00		



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

BHOP6 (BILL NO. 9)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
24	Providing and laying superb quality Porcelain glazed tiles flooring of Master brand or approved equivalent manufacturer of specified size in approved design. Color and Shade with adhesive bond over 3/4" thick (1:3) cement plaster to the cost of sealer for finishing the joints i/c cutting grinding complete in all respect as approved and directed by the Engineer Incharge. a) Full body Glazed tiles ii) 600mm x 600 mm	Sft	15,132.00		
25	Providing and laying superb quality Porcelain glazed tiles of Master / Style brand or approved equivalent manufacturer, skirting / dado of specified size. Color and Shade with adhesive / bond over 1/2" thick (1:2) cement plaster to the cost of and sealer for finishing the joints i/c cutting grinding complete in all respect as approved and directed by the Engineer Incharge a) Full body Glazed tiles iii) 600mm x 600 mm	Sft	1,010.00		
26	Providing and laying superb quality Ceramic tile floors of Master brand of specified size, Glossy/Matt/Texture of approved Color and Shade as per Approved design with adhesive bond over 3/4" thick (1:2) cement sand plaster to the cost of sealer for finishing the joints i/c cutting grinding complete in all respects and as approved and directed by the Engineer Incharge i) 12"x18"x12"x24"x10"x24"x8"x24"x12"x36"	Sft	870.00		
27	Providing and laying superb quality Ceramic tile dado of Master / Style brand or approved equivalent manufacturer of specified size. Glossy/Matt/Texture skirting/dado of approved Color and Shade with adhesive bond over 1/2" thick (1:2) cement plaster to the cost of sealer for finishing the joints i/c cutting grinding complete in all respects as approved and directed by the Engineer Incharge. i) 12"x18"x12"x24"x10"x24"x8"x24"x12"x36"	Sft	2,234.00		
28	Providing and fixing 2" wide MS GI Chowkai angle/double rebate made of 18 SWG MS sheet pressed/welded / joined with M.S. flat 1-1/4"x1/8" i/c 6" long M.S. Flat 1"x1/8" hold fasts 48 Nos welded/screwed punching of lock hole covered with MS Box, coating with enamel paint including filling with cement sand mortar (1:4) and bedding hold fast in cement concrete (1:2.4) complete in all respect as approved and directed by Engineer Incharge i) 10.5" wide	Sft	137.00		
29	iii) 1-1/2" thick solid flush door comprising of 2.5 mm thick Deodar/Ash/Oak ply with grooves, compressed over 2.5 mm thick commercial ply over 2" thick parking wood iv) style and rails under proper pressure i/c the cost of nails, screw bolt, handles, glue, sawing charges and lacquer polishing v) show the grains of ply properly, sand papering and 3/8" thick matching wooden tipping as approved and directed by the Engineer Incharge	Sft	206.00		
30	Providing and fixing approved quality windows	Sq. Ft.	20.00		
31	Providing and fixing approved quality PVC doors complete in all respects	Sft	184.00		



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

SHOPS (BILL NO. 9)

BILL OF QUANTITIES

Sr. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
32	Providing and fixing all types of partly fixed and partly operable glazed anodized powder coated aluminum doors using deluxe section of Mir-A-Good or Pakalar Cables, having chowkat frame of size 40 x 100 mm (1 1/2" x 4") and leaf frame of 60x40mm (2 1/2"x1 1/2") wide sections including the cost of 1/2" (12 mm) thick tinted glass with aluminium triangular gaskets and rubber gasket to support the glass and leaf edging, using approved standard hinges, locks, 3" (75 mm) wide long handles etc., and hardware any required as approved by the engineer in-charge. (2mm thick)	Sq	1,003.00		
33	Providing and fixing all types of glazed aluminum windows of anodized powder coated partly fixed and partly sliding using deluxe sections of approved manufacturer having frame size of 100 x 30 mm (4"x1-1/4") and leaf frame sections of 50 x 20 mm (2"x3/4"), all of 1.6mm thickness including 5 mm thick imported tinted glass with rubber gasket using approved standard hinges, hardware etc., as approved by the Engineer in-charge	Sq	1,045.00		
34	Providing and laying 3/4" thick full width Prepolished Marble slab for Vanities/Shelves/Treads/Window Sills, having Uniform texture (Spotless) with adhesive bond over 3/4" thick (1:2) cement sand mortar at the cost of matching sealer complete in all respects as approved and directed by the Engineer in-charge (1) China Verona	Sq	5,345.00		
35	Providing and laying Prepolished Granite of specified thickness and shade of full width of approved quality laid with adhesive bond over 3/4" thick (1:2) cement sand mortar bed, complete in all respects as approved and directed by the Engineer in-charge. (i) 3/4" thick	Sq	3,208.00		
36	Extra for Rebuilding charges of marble edge in approved design complete in all respects at the cost of Carbonadam disc as approved and directed by the Engineer in-charge	Rt	1,074.00		
37	Extra metal for making 3-Nos Grooves in Steel/Treads, complete in all respects, as approved by the Engineer in-charge.	Rt	253.00		
38	Providing and laying 1" thick terrazo tile for specified colour & size full body, best quality with minimum 5000 PSI in approved design with adhesive bond over 3/4" thick 1:3 cement plaster at the cost of sealer for finishing the joints including, grinding, rubbing, filling. Complete in all respects as approved and directed by the Engineer in-charge. (Without Polishing)				
	a) Size 12"x12"x1"	Sq	8,606.00		
	b) Size 24"x24"x1"	Sq	18,375.00		
39	Rubbing and polishing old grt/ mosaic floor, including repairing voids, uneven surface, complete in all respects. New Grt./ Mosaic Floor	100 Sq	28,561.00		
40	Fabrication of heavy steel work, with angle tees, flat iron round iron and sheet iron for making trusses, girders, tanks, etc., including cutting, drilling, riveting, handling, assembling and fixing in place in position.	Tons	95.79		



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JANANGIR TOMB OVER RAVI RIVER
SHOPS (BILL NO. 9)
BILL OF QUANTITIES

Sl. No.	Item Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
41	Preparatory surface and painting with Matt/Glossy high chemical resistant and weathering Polyurethane paint (Epoxy Paint) by brush in the cost of Primer coat, all material and labour complete in all respects as approved and directed by the Engineer incharge. Primer Coat Each sq. meter	SQ	27	8000	
42	Having 7000 PSI, crushing strength of approved manufacturer, over 2" to 3" sand cushion its grouting with sand in joints its finishing to require slope, complete in all respect. (50% Gray / 50% Coloured) @ 50-mm thick	SQ	4,500.00		
43	Finers structural architectural finishes, benches & landscapes in complete detail	P.S	1.00		5,000,000.00
Total Cost					
TOTAL COST OF CIVIL AND ARCHITECTURAL WORKS					





RAVI URBAN DEVELOPMENT AUTHORITY

CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

SHOPS (BILL NO. 9)

ELECTRICAL WORKS (BILL NO. 9.2)

SUB SUMMARY

SR. No.	DESCRIPTIONS	TOTAL PRICE PAK. Rs.
9.2.1	Estimate Electrical Works	
9.2.2	Estimate Electrical Works	
	Total Cost	



RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

SHOPS (BILL NO. 9)

ELECTRICAL WORKS (BILL NO. 9.2.1)

BILL OF QUANTITIES

Sr. No.	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
				In Figure	
1.0	<u>WIRING AND ACCESSORIES</u>				
1.1	Wiring of light or fan point from switch board/dimmer to the point with 5x1.5 mm ² (P+N+E) PVC insulated single core stranded cables in 25 mm PVC conduit/pipe concealed in walls, columns and slabs including accessories PVC box, 10 Amp. gang switch 1 or 2 way as required, one for each light or fan and installed as in specifications complete in all respects.	Each	290		
1.2	Circuit wiring from DB/ MCBs to gang switches board and from switch board to another switch board with 3x2.5 mm ² (P+N+E) PVC insulated single core stranded cables in 25mm PVC pipe/conduit concealed in walls, columns and slabs as required complete in all respects.	Each	21		
1.3	Circuit wiring from DB/ MCBs to first light with 3x2.5 mm ² (P+N+E) PVC insulated single core stranded cables in 25 mm PVC conduit/pipe concealed/surface in walls, columns and slabs as required complete in all respects. (For Parking Lights)	Each	250		
1.4	The same as item No. 1.3 but from one light point to another light point with 3x2.5 mm ² (P+N+E) PVC insulated single core stranded cables in 25 mm PVC conduit/pipe concealed/surface in walls, columns and slabs as required complete in all respects. (For Parking Lights)	Each	170		
1.5	The same as item No. 1.1 but from one light point to another light point.	Each	190		
1.6	10/13 Amp 3 pin universal flush mounting switch socket outlet wired from DB/MCBs to first outlet with 3x4 mm ² (P+N+E) single core cable stranded (away from switch board) in 25mm PVC pipe/conduit concealed in walls, columns and slabs as required complete in all respects	Each	5		
1.7	The same as item No.1.6 but wiring from one socket outlet to another socket outlet with 3x1.5 mm ² (P+N+E) single core stranded cable in 25mm PVC pipe/conduit concealed in walls, columns and slabs as required complete in all respects.	Each	16		
1.8	15/20 Amp 3 pin mounting switch socket outlet wired from DB MCBs to independent socket outlet with 3x6 mm ² (P+N+E) single core stranded cable (away from switchboard) in 25mm PVC pipe/conduit concealed in walls, columns and slabs as required complete in all respects.	Each	12		
2.0	<u>FANS</u>				



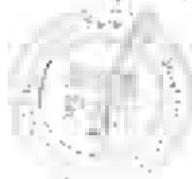
RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

SHOPS (BILL NO. 9)

ELECTRICAL WORKS (BILL NO. 9.2.1)

BILL OF QUANTITIES

Sr. No.	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
				In Figure	
2.1	Providing and fixing Copper wound Exhaust fan with cover and shutter made of Pak/Younas/G.F.C. i/c the cost of necessary cable and hardware for connection from ceiling rose complete as approved and directed by Engineer Incharge				
	Plastic Body (12" dia)	Each	5		
2.2	Providing and fixing Copper wound wall bracket fan made of Pak/ Younas/G.F.C or NEECA approved equivalent i/c the cost of necessary cable and hardware for connection as approved and directed by Engineer.				
	18" Sweep dia	Each	40		
2.3	Providing and fixing Copper wound ceiling fan made of Pak/ Younas/G.F.C or NEECA approved equivalent i/c the cost of necessary cable and hardware for connection as approved and directed by Engineer.				
	56" dia	Each	1		
3.0	<u>CONDUIT/PIPE</u>				
3.1	PVC pipe/conduit Class-B 100 mm dia with accessories suitable for laying multi-core cables in walls/barriers/structure.	Rft.	200		
3.2	PVC pipe/conduit Class-D 100 mm dia with accessories suitable for laying multi-core cables in trenches/directly buried on road crossings including excavation.	Rft.	100		
4.0	<u>POWER CABLES</u>				
4.1	Supply and erection of copper conductor cables for service connection, in pre-laid pipe/G.I. wire/trenches, etc (rate for cable only)				
	PVC insulated, PVC sheathed 4 core 600/1000 volt non armoured cable				
	(a) 10 mm sq.(7/0.052")	Rft.	300		
	(b) 18 mm sq.(7/0.064")	Rft.	250		
	(c) 25 mm sq.(7/0.084")	Rft.	400		
4.2	Supply and erection of single core PVC insulated, PVC sheathed copper conductor, 600/1000 volts grade cable, in pre-laid G.I. pipe/M.S. conduits/PVC pipe/G.I. wire/trenches, etc (rate for cable only):-				
	(a) 300 mm sq (61/0.093")	Rft.	1500		
	(b) 150 mm sq (30/0.093")	Rft.	400		
4.3	Supply and erection of single core PVC insulated copper conductor cables, in pre-laid PVC pipe/M.S. conduit/G.I. pipe/wooden strip batten/wooden casing or capping/G.I. wire/trenches (rate for cables only)				
	450/750 volts PVC insulated:				
	(a) 10 mm sq. (7/0.052")	Rft.	300		





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

SHOPS (BILL NO. 9)

ELECTRICAL WORKS (BILL NO. 9.2.1)

BILL OF QUANTITIES

Sr. No.	Description	Unit	Qty.	Rate (Rs.)		Amount (Rs.)
				In Figure		
	(b) 16 mm sq. (710.064")	Rft.	250			
	(c) 50 mm sq. (1940.072")	Rft.	400			
	70 mm sq. (1910.093")	Rft.	600			
	150 mm sq. (37.093")	Rft.	500			
5.0	CABLE TRAY					
5.1	Providing and fixing cable tray with straight flange fabricated with perforated G.I. Sheet of specified gauge, size and depth duly supported on painted brackets of MS angle iron of 1-1/2"x1-1/2"x3/16" and MS patti of 1-1/2"x3/16" size @ 3 ft C/C, hangers etc the cost of hardware as approved and directed by the Engineer Incharge.					
	(a) 12"x4"	Rft.	300			
	(b) 16"x4"	Rft.	100			
	(c) 24"x4"	Rft.	100			
5.2	Providing and fixing 4" deep cable tray with straight flange fabricated with perforated G.I. Sheet of specified gauge, size and depth duly wall supported/ ceiling hung, supported on painted brackets of MS angle iron of 1 1/2"x1-1/2"x3/16" and MS patti of 1-1/2"x3/16" size @ 5ft C/C, hangers etc the cost of hardware as approved and directed by the Engineer Incharge. (16 SWG)					
	(a) 9"x4"	Rft.	600			
5.3	Providing and fixing screwless cable tray cover fabricated with 16 SWG G.I. Sheet of required size etc the cost of hardware as approved and directed by the Engineer Incharge.					
	(a) 4" wide	Rft.	1.00			
6.0	MAIN PANEL BOARD					
6.1	Switchgear Panel/Main Panel Board of 14 SWG, IP class 54/44 & RAL 7032 including MC and OAG following electrical items, foundation/base frame with all installation operational accessories as per site requirements, as tender specifications and drawings and as directed by Engineer					
	MPB-N (Tollinton Market)					
	INCOMING					
	01 No. 1250 Amps (Adj.) MCCB TP 50kA Icu=100%Ics					
	01 No. VSS (07 position)					
	01 No. 0-600 Volts AC DIGITAL Voltmeter					
	03 Nos. 1250/5 Amps Current Transformers					
	01 No. ASS (R-Y-B-OFF)					
	01 No. 0-1250 Amps AC DIGITAL Ammeter					
	06 Nos. RYB and ON OFF TRIP LED indication lights					





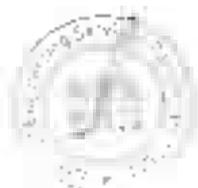
RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

SHOPS (BILL NO. 9)

ELECTRICAL WORKS (BILL NO. 9.2.1)

BILL OF QUANTITIES

Sr. No.	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
				In Figure	
	OUTGOING				
	01 No. 250 Amps (Adj.) MCCB TP 36kA Icu=100%Ics (For MPB-E)	Each	1		
	01 No. 320 Amps (Adj.) MCCB TP 36kA Icu=100%Ics (For Fire Fighting Main Duty Pump)				
	01 No. 250 Amps (Adj.) MCCB TP 36kA Icu=100%Ics (For Ventilator)				
	02 Nos. 63 Amps (Adj.) MCCB TP 25kA Icu=100%Ics (For SMPB-Shops GF & FF)				
	01 Nos. 63 Amps (Adj.) MCCB TP 25kA Icu=100%Ics (For LCP)				
	01 No. 400 Amps (Adj.) MCCB TP 36kA Icu=100%Ics (For PFI)				
	02 Nos. 63 Amps (Adj.) MCCB TP 25kA Icu=100%Ics (Spare)				
	01 No. 63 Amps (Adj.) MCCB TP 25kA Icu=100%Ics (Space)				
	14 SWG steel sheet Panel RA, 7032, IP= 54/44 and all other accessories. Electrolytic copper bus bar with electrical grade PVC mountings 3 for each, nuts, bolts and washers, control MCB etc. (2500 Amps R+Y+B N, 50 Hz, 415 V, AC) All other accessories required for completion of the quality works including Cable gland and lugs etc. Contractor shall submit the genuine certificate from the manufacturer/authorized agent clear by indicating the project name make/model/rating of MCCB, MCB, magnetic contactors, terminal blocks and voltmeters/ ammeter alongwith warranties.				
6.2	MPB-E (Tolinton Market)				
	INCOMING				
	01 No. 250 Amps (Adj.) MCCB TP 36kA Icu=100%Ics				
	OUTGOING				
	04 Nos. 40 Amps (Adj.) MCCB TP 25kA Icu=100%Ics (For DBs)				
	01 No. 63 Amps (Adj.) MCCB TP 25kA Icu=100%Ics (For Elevator)				
	01 Nos. 25 Amps (Adj.) MCCB TP 25kA Icu=100%Ics (For Fire Fighting Jockey Pump)	Each	1		
	02 Nos. 40 Amps (Adj.) MCCB TP 25kA Icu=100%Ics (Spare)				
	01 No. 63 Amps (Adj.) MCCB TP 25kA Icu=100%Ics (Space)				





RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

SHOPS (BILL NO. 9)

ELECTRICAL WORKS (BILL NO. 9.2.1)

BILL OF QUANTITIES

Sr. No.	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
				In Figure	
	Indication lights ammeter with selector switch voltmeter with selector switch, CT 500/5 A, Push Button ON/OFF, 04 Nos. Magnetic Contractors 25A Panel box SWG 14 powder coated RAL colour 7032, IP class 44 and with all accessories.				
7.0	<u>DISTRIBUTION BOARDS</u> D.Bs with TP incoming adjustable moulded case circuit breaker and SP miniature outgoing circuit breakers, Panel box SWG 16 powder coated RAL color 7032, IP class 44 and with all accessories, along with all installation and operational accessories as per specification or as shown on the drawings.				
7.1	DB- GF, FF-02, BF-01 & BF-02 01 No. Incoming 40 Amps (Adj.) MCCB TP 36kA Icu=100%Ics 01 No. 32 Amps Magnetic Contactor AC3 with Push Buttons 06 Nos. outgoing 10A, MCB, SP RC=10 kA, Icu=100%Ics 04 Nos. outgoing 20A, MCB, SP RC=10 kA, Icu=100%Ics 03 Nos. outgoing 10A, MCB, SP. RC=10 kA, Icu=100%Ics (Spare) Indication lights, push buttons, digital ammeter with selector switch, digital voltmeter with selector switch, Panel box SWG 16 powder coated RAL color 7032, IP class 44 and with all accessories.	Each	4		
7.2	DB- Shops 01 No. Incoming 32 Amps MCB DP 10kA 03 Nos. outgoing 10A, MCB, SP. RC=10 kA, Icu=100%Ics 01 Nos. outgoing 20A, MCB, SP. RC=10 kA, Icu=100%Ics 02 Nos. outgoing 10A, MCB, SP. RC=10 kA, Icu=100%Ics (Spare) Indication lights, push buttons, digital ammeter with selector switch, digital voltmeter with selector switch, Panel box SWG 16 powder coated RAL color 7032, IP class 44 and with all accessories.	Each	20		
8.0	<u>FIRE ALARM SYSTEM</u> Supply, Installation, testing and commissioning of addressable Fire Alarm and Detection System comprising of following equipments including all allied accessories complete in all respects as required. The System shall be approved by the Engineer.				





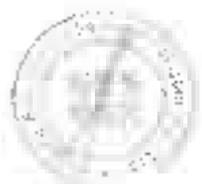
RAVI URBAN DEVELOPMENT AUTHORITY
CONSTRUCTION OF BRIDGE TO JAHANGIR TOMB OVER RAVI RIVER

SHOPS (BILL NO. 9)

ELECTRICAL WORKS (BILL NO. 9.2.1)

BILL OF QUANTITIES

Sr. No.	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
				In Figure	
8.1	Supply, installation and commissioning of wiring with specified FireResistant Stranded Cable (Fire Rating for 2 hours) of required size from respective DB to Fire Alarm FACP (Fire Alarm Control Panel) in pre-laid conduit/duct. MakePony / Beldern Covical (Italy) or equivalent as approved and directed by the Engineer Incharge. 2 core 1.5 sq.mm				
(a)	(Fire Resistant Cable)	Rft	3000		
8.2	Supply, installation and commissioning of wired/wireless Addressable Microprocessor based Fire Alarm Control Panel (FACP) capable of PC interface with window conforming to EN-54, consisting of specified loop circuits having 240 devices per loop, indicating circuits, built in power supply with back up batteries, alarm and trouble indication, silencealarm and reset system, general alarm and reset system, general alarm facility. Made of Eurotech Fire UK, Notifire USA, Simplex USA, complete in all respect as approved and directed by Engineer Incharge.				
(a)	1) FACP 2-LOOP	job	1		
8.3	Supply installation and commissioning with Addressable Break Glass unit, (Manual Call Point) with key type EN-54 having a built in short circuitisolator and microprocessor to ensurea responsetime of max. 1 second, having an indication LED flash after pressing the button to acknowledge theactivation and a key operation facility for testing purposes, made of Honeywell/ Bosch/ Eaton (UK) or as approvedand directed by the Engineer Incharge.	Each	12		
8.4	Supply, installation and commissioning of Addressable Type Indoor Loop Powered electronic Sounder/Flasher/Bell EN-54 with minimum sound output 100dB at 1 meter with frequencies of variety of sounds as required and shall be loop wired and loop signaled, built in short circuit isolator, configured via software, made of Honeywell/ Bosch/ Eaton (UK), or equivalent as approved and directed by the Engineer Incharge.				
(a)	With Flasher	Each	12		



RAVI URBAN DEVELOPMENT AUTHORITY
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SHOPS (BILL NO. 9)

ELECTRICAL WORKS (BILL NO. 9.2.1)

BILL OF QUANTITIES

Sr. No.	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
				In Figure	
8.5	Supply, installation and commissioning of Addressable Optical Smoke Detectors EN-54, incorporating an LED indication located in labyrinth with in the housing of the detector. Sensing unit, adjustable via software between 0-90 seconds having built in short circuit isolators on both inputs. make Honeywell/ Bosch/ Eaton (UK), or equivalent including the cost of all other accessories required, approved and directed by the Engineer Incharge.				
(a)	Ionization, photoelectric.	Each	1		
(b)	Dual Detector	Each	1		
8.6	Supply, installation and commissioning of Addressable Heat Detectors incorporating an LED indication located in labyrinth with in the housing of the detector, adjustable Sensing unit via software between 0-90 seconds. The detector shall have built in short circuit isolators on both inputs, made of Ademcol/ Honeywell/ Bosch/ Eaton (UK) or equivalent as approved and directed by the Engineer Incharge.				
(a)	Fixed Heat Detector to Sense High Temperatures	Each	88		
(b)	Rate of Rise (ROR) Heat Detector to sense sudden increase in Temp.	Each	1		
9.0	<u>TRANSFORMER</u>				
	Supply, installation, commissioning and testing of oil cooled type, Step down Power Transformer pole mounted of specified rating, 11/0.415KV etc the cost of lifting hooks, thermometers, LT & HT bushing 5-steps, tap changer, imported double float buchholz relay, 2 earthing terminals, roller wheels, connecting terminals for cables M.S box transformer in order to cover complete LT side, all necessary materials required for connections on HT & LT side rated voltage 11000/415/240V specified impedance as specified by WAPDA/IEC system earth: Delta/Star, neutral solidly earthed, no Wapda testing charges, complete in all respects made of PEL, Siemens, Transpower, Elmolec or as approved and directed by the Engineer Incharge. 4% impedance without buchholz relay				
(a)	630 kVA	Each	1		
10.0	<u>ELECTRIC ENERGY METER</u>				
10.1	Supply and erection of electric energy meter, including meter testing fee, etc. 1x30 Amp, 250 volts	Each	20		





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SHOPS (BILL NO. 9)

ELECTRICAL WORKS (BILL NO. 9.2.1)

BILL OF QUANTITIES

Sr. No.	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
				In Figure	
10.2	Supply and erection of electric energy meter, including meter lasting fee, etc. 3x50 Amp. 400 volts	Each	3		
11.0	<u>EARTHING</u>				
11.1	Providing making & testing/commission of Rod type Earth point comprising of 5/8" dia. (16mm dia) 10ft long copper coated M.S rod driven in ground duly fixed with clamp with Tinned earth test link copper plate (300x80x10mm) w/c the cost of brass nuts, spacers, bolts washers lugs etc but excluding the cost of copper strand & manhole, as approved and directed by Engineer Incharge (Rod Type Earthing).	Each	6		
Total Cost (9.2.1)					





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SHOPS (BILL NO. 9)

ELECTRICAL WORKS (BILL NO. 9.2.2)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty.	Unit Rate (Rs.)	Total Amount (Rs.)
1.0	<u>LIGHTING FIXTURES</u> Supply, storage, installation, testing and commissioning of the following items of work (unless specifically stated otherwise) including all material, labor, tools, accessories, etc. required for proper completion of each item as per specification, drawings and as directed by the Engineer. Following LED Luminaires of suitable wattage make suitable for the project requirements. Contractor to submit lighting design calculation to Engineer to check the adequacy of the lighting and should adjust the number of luminaires as per project lighting requirements. The fitting shall be approved by the Engineer.				
1.1	Light Fixture Type LED Down Ceiling/surface mounted, 40W complete in all respect with allied accessories. The fitting shall be approved by the Engineer.	Each	415		
1.2	Light Fixture Type LED Down mounted down lighter, 20W complete in all respect with allied accessories. The fitting shall be approved by the Engineer.	Each	10		
1.3	LED Water tight 20W light fixture IP 65 complete in all respect with all allied accessories. The fitting shall be approved by the Engineer.	Each	40		
1.4	LED Pendant light 10W light fixture IP 65 complete in all respect with allied accessories. The fitting shall be approved by the Engineer.	Each			
1.5	Light Fixture Type LED Down Underwater light with RGB IP 68, 18W, complete in all respect with allied accessories. The fitting shall be approved by the Engineer.	Each	4		
1.6	Light Fixture Type LED Wall light IP 65, 8W, complete in all respect with allied accessories. The fitting shall be approved by the Engineer.	Each	18		
2.0	<u>DIESEL GENERATOR, FOUNDATION AND SOUND & WEATHER PROOF CANOPY</u>				
2.1	Supply of 400 Volts, three phase four wire, 50 Hz skid mounted Brand Prime power DG set including four weather proof & sound attenuated canopy, Day fuel tank and all required accessories.	No.	1		
a)	100 kVA				
2.2	<u>AMF/ATS PANEL</u> AMF/ATS/MCO panel for following DG sets ratings including all installation and operational accessories complete in all respect for proper operation for the DG sets of the ratings as mentioned below and complete with all components/accessories as per specifications and drawings: <u>AMF/ATS Suitable for 100 kVA</u> <u>MATERIAL</u> 02 Nos. 250 Amps Magnelaic Contactor (AC) 3) 4 Pole 02 Nos. 250 Amps Manual Change over (MCO) 4 Pole 01 No. Neutral/OFF/Auto selector switch 02 Nos. VSS (07 position) 02 Nos. 0-600 Volts AC DIGITAL Voltmeter	No.	1		





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SHOP 9 (BILL NO. 9)

ELECTRICAL WORKS (BILL NO. 9.2.2)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty.	Unit Rate (Rs.)	Total Amount (Rs.)
	<p>06 Nos. 250/5 Amps Current Transformers 02 Nos. ASS (R-Y-B-OFF) 02 Nos. 0-400 Amps AC DIGITAL Ammeter 06 Nos. RYB and ON OFF TRIP LED indication lights 01 No. Timer Relay with Base 220-240 VAC 01 No. ATS Module Deep See (UK) 12 Nos. 2 Amps. MCB for control 01 No Battery Charger 12/24 V 12 Nos. Line up Terminals 2.5 mm 01 No Emergency Stop Switch with safety cap 01 No. Panel light with limit switch 01 No. Exhaust fan 6" & LOUVER 12" sweep with thermostat relay and all accessories etc. 14 SWG steel sheet (Paint) RAL 7032, IP= 54/44 and all other accessories. Electrolytic copper bus bar with electrical grade PVC mountings 3 for each, nuts, bolts and washers, control panel (500 Amps, R+Y+B N, 50 Hz, 415 V. AC) All other accessories required for completion of the quality works including Cable glands and lugs etc. Contractor shall submit the genuine certificate from the manufacturer/authorized agent clear by indicating the project name, make/model/rating of MCCB, MCB, magnetic contactors, terminal blocks and voltmeter/ammeter alongwith warranties.</p>				
3.0	<p>POWER FACTOR IMPROVEMENT PANEL (PFI) 14 SWG steel sheet clad IP 54 (Paint) RAL 7032 powder coated power factor improvement panel (PFI) including Cu busbar, heavy duty incoming air circuit breaker to capacitor, magnetic contactors, continuous digital p.f controller, on & off push buttons etc complete with all components/ accessories as per specifications and drawings.</p> <p>PFI-150 KVAR - 12 steps with continuous digital power factor and capacitor controller - 01 No. Hand-OFF/Auto selector switch - 04 Nos. 25 KVAR capacitor - 04 Nos. 12.5 KVAR capacitor - 04 No's 63A Magnetic contactor (AC-3) - 04 No's 30A Magnetic contactor (AC-3) - 04 Nos. 63A MCCB, TP (Adj) RC=25 kA Circuit breaker - 04 Nos. 32A MCCB, TP (Adj) RC=25 kA Circuit breaker - 19 No. Indication light - 01 for each magnetic contactor - 16 No. Push Buttons (ON/OFF) - 12 No. Auxiliary contactor (NO/NC) - 01 Panel light with limit switch - All other accessories required for completion of quality work - 14 SWG powder painted 01-coude with electrolytic copper bus bar with electrical grade PVC mountings 3 for each, nuts, bolts and washers, control MCB etc.</p>	No	1		





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SHOP 5 (BILL NO. 9)

ELECTRICAL WORKS (BILL NO. 9.2.2)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty.	Unit Rate (Rs.)	Total Amount (Rs.)
	Contractor shall submit the genuine certificate from the manufacturer/authorized agent clear by indicating the project name make/model/rating of MCCB, MCB, magnetic contactors, terminal blocks and wattmeters/ammeter along with warranties.				
4.0	<u>EMERGENCY AND EXIT LIGHTING WITH CENTRAL BATTERY SYSTEM</u>				
	Supply, testing and commissioning of addressable emergency and lighting with central battery system comprising of following equipments including all allied accessories complete in all respect as required. The system shall be approved by the Engineer.				
4.1	PVC insulated 2-core, fire rated 2.5mm ² cable in 25 mm dia. PVC conduit (From CBS panel to devices) complete with all allied accessories.	Rt	1,20		
4.2	Addressable Central Battery system units complete with 60 minutes battery backup with all accessories including sealed lead acid batteries of 12V and project specific wiring circuits	Job	1		
4.3	Non maintained emergency addressable CBU supplied DC 24V emergency escape route zone ceiling mounted emergency addressable Light upto 3 to 4W LED including all allied accessories complete in all respects. The fitting shall be approved by the engineer.	Each	20		
4.4	Maintained addressable CBU supplied DC 24V emergency exit signs ceiling mounted emergency addressable Light upto 3 to 4W LED Green including all allied accessories complete in all respects. The fitting shall be approved by the engineer.	Each	15		
	<i>Contractor is advised to submit complete technical data of the system to the Engineer for approval before commencement of work at site.</i>				
5.0	<u>LIGHTING PROTECTION SYSTEM</u>				
	Supply, installation, testing, commissioning complete Lighting Protection System with all allied accessories complete in all respects as required.				
5.1	Supply installation, testing and commissioning of lightning protection system using ESP (Early Streamer Emission) including Air terminal, steel lightning event counter, copper tape, earthing pit & rods, bare 70 mm copper, gel, clips and anchorage complete in all respect with all required accessories as per project specified requirements.	No.	1		
6.0	<u>EARTHING</u>				
6.	Bare type, earthing up to permanent water level/level soil by arrangement of earth pit/pit complete of concrete/brickwork housing with lifting cover 50mm perforated GI pipe, appropriate bare copper stranded conductor as per details in drawing. The earthing and bonding shall be complete with ferris clamps etc. & all metal works shall be bonded to the proposed earthing network.	No.	4		
	<u>MATERIAL</u>				
	Filling of earth bore 3" dia 100 ft. deep or up to permanent water level.				





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SHOPS (BILL NO. 9)

ELECTRICAL WORKS (BILL NO. 9.2.2)

BILL OF QUANTITIES

Item No.	Description	Unit	Qty.	Unit Rate (Rs.)	Total Amount (Rs.)
	<p>Supply and installation of G.I pipe 2" dia 14 SWG to be installed in pre-made bore including all accessories like tees, bends, sockets etc. Pipe shall be connected to tinned copper spike as per detail shown on drawing, complete in all respects.</p> <p>Supply and installation of tinned copper spike to be manufactured as per detail shown on drawing. Spike shall be connected/screwed at bottom of G.I pipe including all accessories like nuts and bolts complete in all respects.</p> <p>Supply and installation of 2x70 mm² bare stranded electrolytic cable for lead in pre-paid G.I pipe and connected to tinned copper spike as shown on drawing. 2 Nos. of leads to be installed including all accessories like brass nuts, bolts, washers etc, complete in all respects.</p> <p>Supply and installation of tinned earth test link in earthing pit consisting of copper plate (100x125) with fixing arrangement on the wall of man hole including bolts, nuts, bolts washers etc, complete in all respect.</p> <p>Construction of earthing pit (manhole) of size 10"x18"x24" deep with 4" thick brick wall with cement mortar, internal 1:4. RCC 4" thick with lifting hooks and all accessories complete in all respect.</p> <p>Testing and commissioning of the earthing system along with all testing accessories complete in all respect.</p>				
7.0	7.0 CABLE AND TERMINATION KIT				
7.1	MV cable 3-core armored 120 mm ² Al/XLPE/SWA/PVC cable with aluminum conductor voltage grade: 8.7/15 kV including back filling of any type of trench already excavated, after laying various cables (MV/LV) including sand bed, protective brick works, warning tape and compaction of excavated earth compaction in layers at 90% of MOD as per modified AAS-110, site cleaning etc., as per drawing and according to standard	Rft.	300		
7.2	Outdoor Termination kits for MV cable 3-core 120 mm ² Al/XLPE/SWA/PVC cable with aluminum conductor voltage grade: 8.7/15 kV	No.	2		
Total Cost (B.I.I)					

